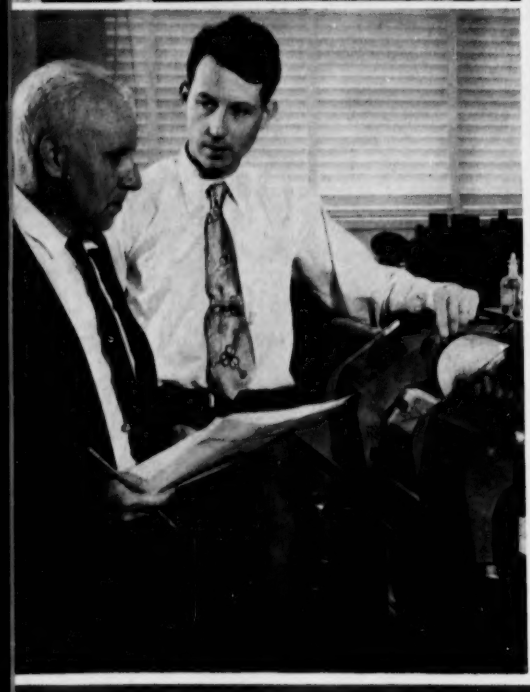
Chemical Week

1955



Resurging sales boost three-months' profits; and the current quarter shapes up well . . . p. 13

Long strike prompts a long second look at workers' attitudes, company policy . . . . . p. 21

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Re[illegible] cards from consumer [illegible] can beef up or [illegible] sales . . p. 84

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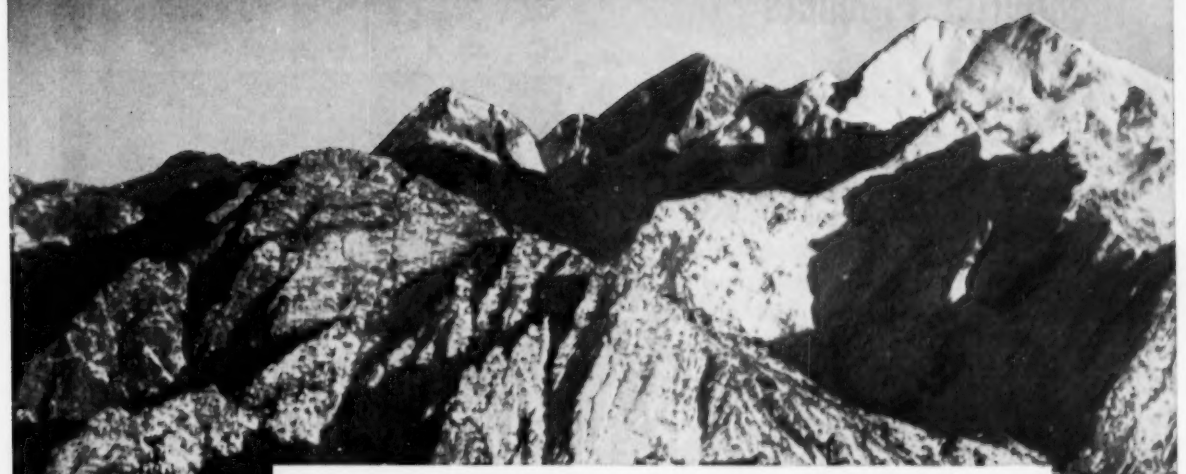

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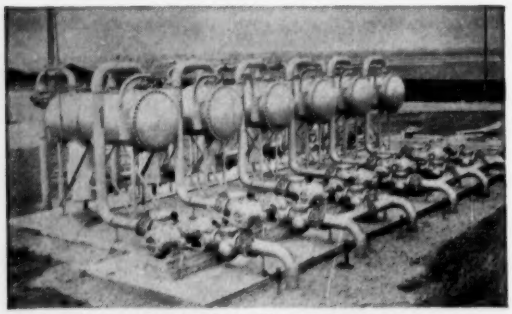
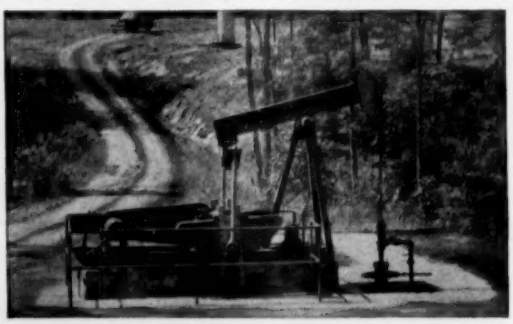
. . **AS ANTI-CRATERING AGENT** — In rayon manufacture, Polyrad has been useful both for anti-cratering action and bath mud control.



... **IN DEMULSIFICATION COMPOUNDS**—Polyrad helps separate water from crude oil in petroleum production. (Courtesy Warner Lewis Co.)

... **AS ACID INHIBITOR**—Polyrad acts as a wetting agent while controlling the corrosive action of hydrochloric acid, making it possible to clean porcelain and metal with acid compounds.



... **CORROSION CONTROL**—In all phases of the petroleum industry—primary production, second recovery, refining—Polyrad controls corrosion. (Courtesy Standard Oil Co., N.J.)

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Chemical Week

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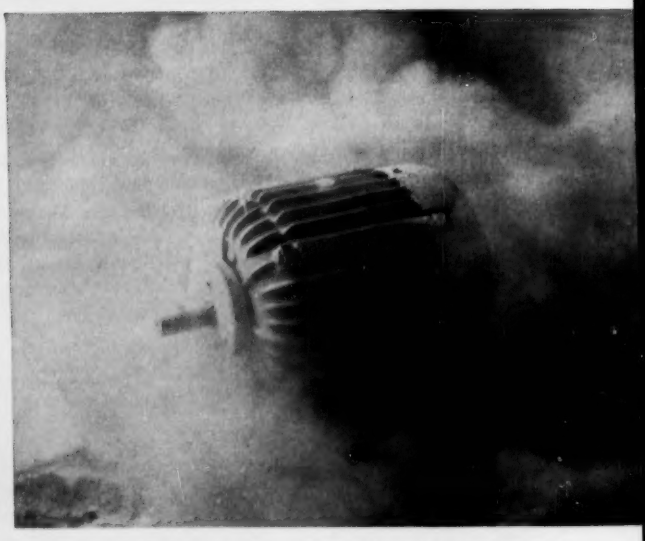
MOST PREFERRED "POWER PACKAGE"



Electrical System Fact—Only the new Life-Line "A" motor gives you the unsurpassed corrosion-resistant protection of exclusive new Bondar, Bondite and Mylar* insulations.

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FACT:

The new Life-Line A is the most corrosion-resistant motor on the market

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Because the combined improvements in insulation, housing and bearing design give unsurpassed protection against any contamination. It takes the right combination of such improvements in *all three systems*—electrical, mechanical and lubrication—to make the Life-Line "A" industry's most preferred power package.

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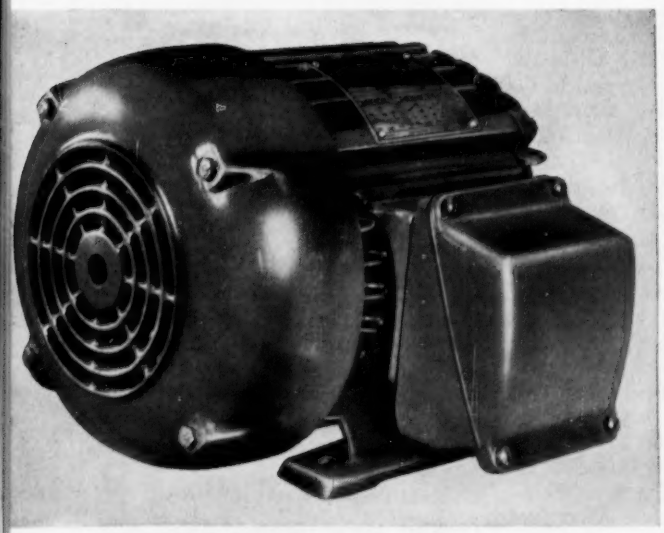
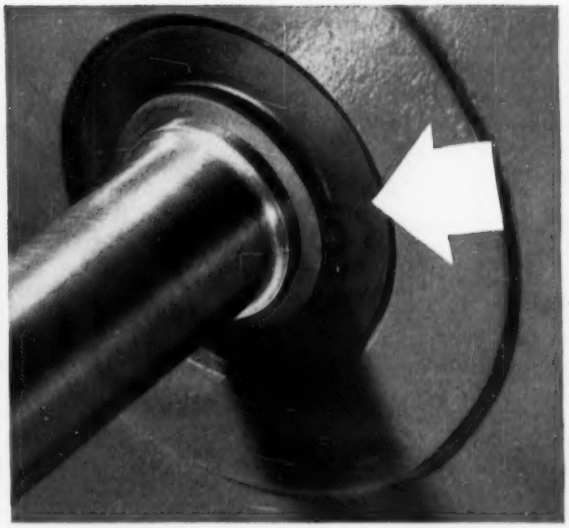


Mechanical System Fact—New cast-iron frames and brackets utilize the finest grained castings with uniformly thick wall sections precisely fitted and sealed. Molded glass plastic cooling fans on totally-enclosed types are chemically inert.



Lubrication System Fact—The new pre-lubricated Life-Line "A" bearing features a "4-way seal"—*two* seals on each side. Totally-enclosed types have additional neoprene flinger which assures bearing protection in any corrosive application.

OPINION . . . . . .

Foreign Fairs

TO THE EDITOR: You mentioned in the news article in your Distribution Dept. (*April 9, p. 58*) a number of foreign trade fairs scheduled for the coming months. I thought you might like to add some of the most important German international fairs, which might be of interest to your readers:

July 15-24: International Dry Cleaning and Dyeing Exhibition, Munich.

Sept. 4-8: International Autumn Fair, Frankfurt.

Sept. 24-Oct. 9: German Industries Exhibition, Berlin.

Oct. 1-9: ANUGAM 1955—Food and Packaging Exhibition, Cologne.

Oct. 8-16: Plastics Exhibition, Dusseldorf.

HENRI A. ABT
German-American Trade
Promotion Office
New York City

Portable Ices

TO THE EDITOR: We were intrigued by your news article on the so-called portable ices (*Feb. 26, p. 70*) . . . You may like to know also that consumer products are usually made to freeze (or thaw) at 20 F so that the average housewife may be in a position to activate it properly in her household freezing facilities . . .

In our own industrial compositions, however, we have ratings of 10 F, 0 F, −10 F and −20 F—depending upon the application. The main use is for the transportation and display of frozen foods . . . and as satisfactory substitutes for ice and dry ice in many applications . . .

CARL S. FERGUSON
National Chemical Refrigerants Corp.
Boston, Mass.

Unifies Surface

TO THE EDITOR: I have just read your news article on multicolor paints (*April 2, p. 78*) and although it is substantially correct I do not think that it develops the almost unlimited possibilities of this type of finish. One of the most important characteristics of the finish is the fact that it unifies the appearance of the surface even though it may consist of various structural materials such as different kinds of wood, masonite and so forth . . .

By the way, *CW* is one of the few magazines that I receive that I read from cover to cover . . .

G. KLINKENSTEIN
President
Maas & Waldstein Co.
Newark, N. J.

Internal Security

TO THE EDITOR: That was a very interesting report you had on what companies and unions are doing about "security risks" . . . I thought, too, that you would be interested to know that long before the postwar crop of anti-Communists sprang up, there was provision in the constitution of Oil Workers International Union denying membership to members of Communist and Fascist organizations.

This provision was adopted in 1937. Fortunately—and perhaps this is a compliment to the oil industry concerning the caliber of the men they employ—we rarely have had to enforce this provision by expulsion of a member.

The newly adopted constitution of Oil, Chemical and Atomic Workers International Union contains a similar provision . . . "membership is expressly denied to any individual who is a member of any Communist or Fascist organization or who advocates overthrow of the government by force or violence."

. . . We provide however, for a carefully conducted trial of the accused by his local union after due notice and with counsel. Right of appeal to the International Executive Board and thence to the International Convention is also provided.

. . . It is the duty of the union to keep itself clean of Communists, racketeers, other damaging elements. . . .

If we should overlook a Communist in our membership, we appreciate any person's calling the fact to our attention. We will investigate . . . if we find sufficient evidence to support the charge, we will seek expulsion . . . But we insist that he gets an American-style trial . . . the right to face his accuser and cross-question him. We insist, very definitely, on evidence, not hearsay, of specific acts or affiliations.

This does not solve the security problem. We can only expel the member. We cannot get him fired. The Taft-Hartley Act provides that the union can demand discharge of a man, even under a union shop, on only one ground: nonpayment of dues. . . .

But the best way we can cooperate in the internal security program is through the foregoing procedures. . . .

Those of us in the legitimate trade unions feel that we know quite a bit about Communists—how they behave, how to spot them, how to handle them. We learned the hard way—fighting them tooth and nail at the grass roots . . . Hundreds of union leaders can spot a Communist long before the FBI can . . . and I say this with the hope that no one will think we are immodest. We have just had experience at the bare-knuckles level. . . .

But we view with a skeptical eye these things:

1. The Attorney General's list—particularly if improperly used . . . He should not be the final judge of what organizations are and are not un-American. Let a fair trial decide.

2. We do not believe in unsupported, hearsay evidence. . . .

3. We do not recognize the existence of any such thing as a "Fifth Amendment" Communist . . . There may be grave doubts as to a man's good sense and discretion if he "takes the Fifth" on the question of his politics . . . but he has every right to do so . . . The amendment was written by wise men for good reasons . . . If a man is penalized for "taking the Fifth" his rights are being infringed upon. . . .

O. A. KNIGHT
President
Oil, Chemical and Atomic Workers
International Union, CIO
Denver, Colo.

DATES AHEAD . . .

American Institute of Chemists, annual meeting, Chicago, May 11-13.

Automation Symposium, Michigan State College, East Lansing, May 12-13.

Chemical Specialties Manufacturers Assn., midyear meeting, Drake Hotel, Chicago, May 15-17.

Chemical Progress Week, May 16-21.

Chemical Market Research Assn., annual meeting, Plaza Hotel, New York, May 18-19.

Rubber Division, Chemical Institute of Canada, annual conference, Sheraton Brock Hotel, Niagara Falls, Ont., May 20.

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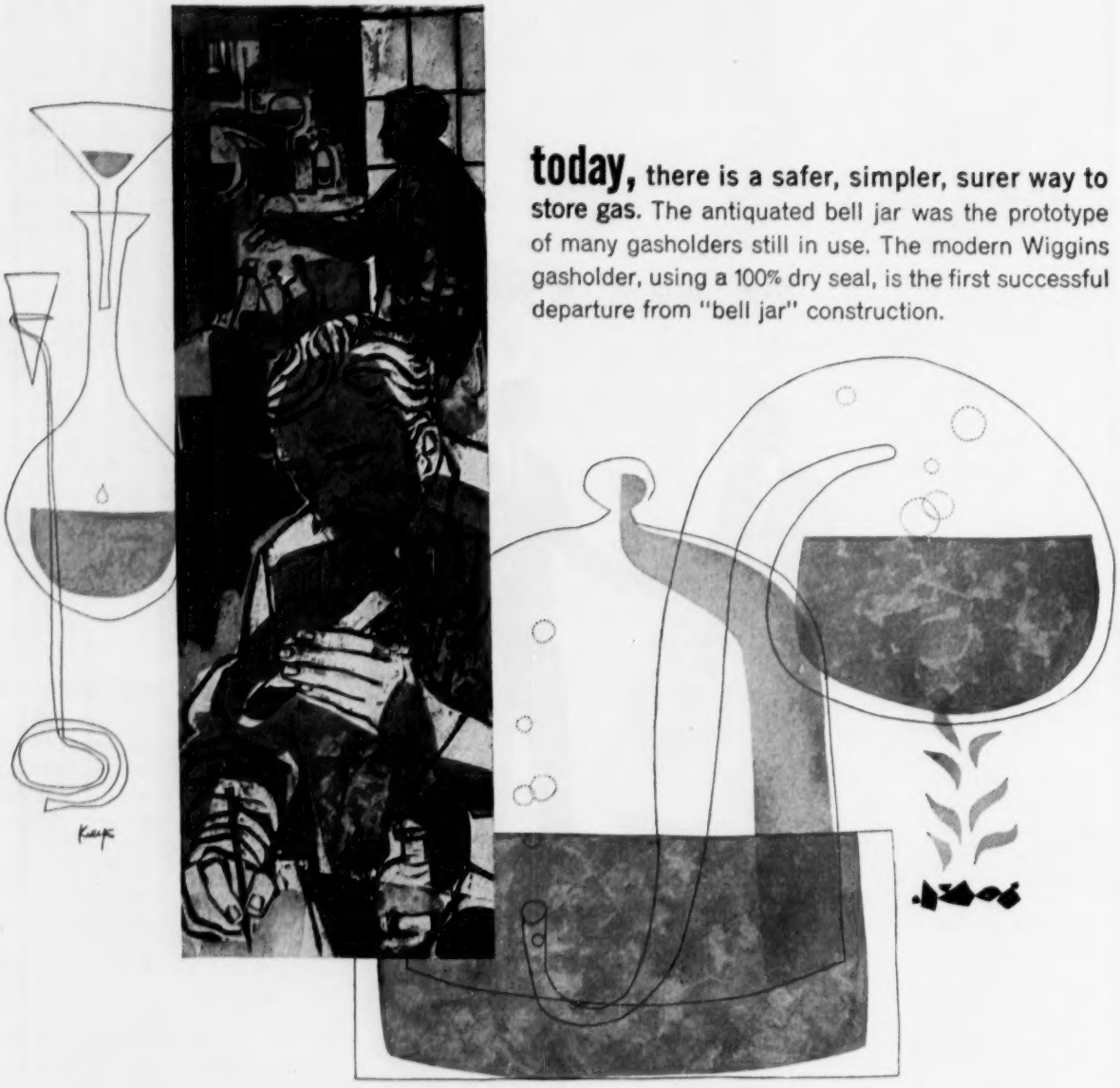

today, there is a safer, simpler, surer way to store gas. The antiquated bell jar was the prototype of many gasholders still in use. The modern Wiggins gasholder, using a 100% dry seal, is the first successful departure from "bell jar" construction.

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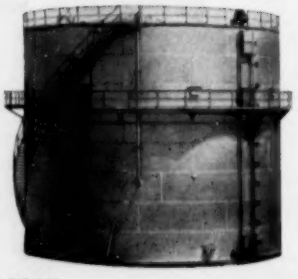

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NEWSLETTER

Lost in the excitement over withdrawal of Cutter-produced Salk vaccine from the market last week (*see p. 14*) was a series of warnings of what chemical executives may be expected to face in the months ahead. None is of earth-shaking importance at the moment, but any one could blossom overnight into a major headache by summer.

Take, for example, the matter of reciprocal trade. Last month about this time, the dopesters were predicting a defeat for the Eisenhower Administration on the trade bill aimed at lowering trade barriers—then before the powerful Senate Finance Committee. Indeed the gloom (from the Administration's point of view) was so thick that high-tariff protectionists were mentally uncorking the champagne bottles in celebration of a winning campaign.

But today the situation is almost completely reversed. The Finance Committee has reported out to the Senate floor a bill that, for the most part, represents Eisenhower's wishes. Again, on a major issue, the President seems to have successfully gambled and won. His persuasive tactics on tariffs could well represent the pattern he'll follow in other legislative campaigns.

•

The Justice Dept. also seems to be using the velvet glove technique—at least for the moment. It reports it will keep a close eye on pricing and distribution of all Salk vaccine—watching particularly for collusion and price-fixing among producing companies. It won't step into purely state matters, though—preferring to keep in the background unless called into a complaint situation.

•

Not so hesitant to get embroiled is the American Dental Assn., which last week launched an attack on "deceitful advertising" used by some dentifrice manufacturers. Attacking the claim that dentifrices will prevent tooth decay, ADA labels such advertising "false and misleading," says that dentists and dental societies from one end of the U.S. to the other are concerned over the matter. No definite action has, as yet, been proposed—but the furor is running high.

•

Similar symptoms are noticeable among members of Democratic Committee on antitrust investigations, scheduled to get under way in earnest next Tuesday (May 10), with the opening of a three-week hearing before the House Judiciary Antimonopoly subcommittee. Purpose (according to Chairman Emanuel Celler, D., N. Y.) is "a preliminary, exploratory survey of major antitrust problems now emerging in the U.S. economy." The committee will take up in turn: mergers and concentration, antitrust phases of patents, and problems in enforcing antitrust laws against cartels.

Before the dust settles, Secretary of State Dulles and Dean Acheson will be called in to give their views on foreign cartels, and a parade of other witnesses will be invited to appear. Outlook: fireworks—particularly if the committee is able to uncover what may be interpreted as lapses in the Administration's jurisdiction over antitrust violations.

There now appears to be a distinct possibility that Pure Refining Co. and Atlantic Refining Co. will sell their stock in Neches Butane Products Co.—the company that last week took over control of the government-owned butadiene feedstock plant at Port Neches. Why: Texas Co. and Gulf Oil Corp. (the other two oil firms holding stock in Neches Butane Products)—which have been primarily responsible for operating the feedstock plant—now have ownership of the other two former government plants in the mid-Texas synthetic rubber industry.

•

Agreement is near on patent rights for an inhibitor originally developed for use against coal mine acids—but which may have wider use in general control of oxidation corrosion. First work on the inhibitor was conducted at Johns Hopkins University under the sponsorship of the Public Health Service and the Interstate Commission on the Potomac River Basin, but further research was hamstrung by a disagreement over whether the government contribution should open use of the patent to anyone on a royalty-free basis.

Insiders now predict, however, that this problem is close to settlement. Agreement should mean that tests, field-sponsored jointly by the Potomac group, the Bituminous Coal Institute and the federal government, will start up soon again.

•

A move was made on Long Island last week that may prove to be trend-setting. Insular Chemical Co. (owned jointly by Rubber Corp. of America and Ross & Roberts Co.) will build a polyvinyl chloride plant, due for completion by spring 1956—an unusual step to be taken by independent plastic processors.

Heretofore, polyvinyl chloride production has been essentially in the hands of basic chemical companies. Insular's move represents a major departure from the established pattern in that two vinyl resin consumers have joined hands to "go basic" with respect to their chief raw material.

•

For a totally different purpose, Lukens Steel Co. is also reported to be reconnoitering in the plastics field. Seeking to iron out the peaks and valleys of its main business—special steels for the capital goods industries—Lukens has been studying a host of new businesses. Aim: diversification. Plastics seem to offer opportunities for the company's special needs—and with sales still slipping (down 23% last year), there are indications that the company will make its decision to go ahead soon.

•

And on the other end of the line, National Vulcanized Fibre Co., which has been concentrating on plastic production for industrial customers, wants to diversify in the direction of consumer products. Reason: sales dropped 25% last year when the automobile, electronic, and textile industries retrenched; National executives want to be positioned better (with at least 20% of sales to the public) if such a situation recurs.

•

Advised by the Justice Dept.'s Antitrust Division that it could not contemplate merger with Ideal Cement Co., Superior Portland Cement, Inc., is going about the business of undoing the merger tie lines. What's intriguing observers: how far can premerger negotiations go (and then be called off) without damage to so-called "competitors"?

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ORANGES

Four ounces to one pound PERMA GREEN IRON 135 per tree produces dark green leaves and more, larger and better colored oranges.

TREATED

Orange Tree Photos Courtesy National Fertilizer Review

When iron is lacking and plant leaves turn yellow, PERMA GREEN IRON 135 makes them dark green in two weeks' time.

PERMA GREEN IRON 135 is an organic chelate that moves upward with the sap to rejuvenate the entire plant.

PERMA GREEN IRON 135 *now produces* **—**

— more and juicier oranges and grapefruit
— more and larger nuts
— more nutritious vegetables
— larger and more beautiful roses
— deeper-green leaves on azaleas and rhododendrons
— more attractive ornamental trees and shrubs.

Write for detailed information on PERMA GREEN IRON 135 for plants and reprint of scientific article on CHELATES.

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for quality products, remember –

Refined PRODUCTS CORPORATION
Manufacturing Chemists
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SUNFLOWERS

Grown in nutrient solution. Small yellow plant at left treated with iron sulphate.

Large dark green plant at right treated with PERMA GREEN IRON 135.

GARDENIAS (Greenhouse)

Iron is very important for gardenias. Treat each bush with 1/16 to 1/8 level tablespoonful PERMA GREEN IRON 135 to insure dark green leaves and large pure white flowers.

BUSINESS & INDUSTRY . . .

FIRST QUARTER COMPANY EARNINGS

(in dollars; 000 omitted)

	Sales			Net After Taxes			Earnings per Share
	1955	1954	% Change	1955	1954	% Change	1955
Air Reduction	$33,900	$29,415	15.3	$2,233	$1,586	40.8	$0.68
Allied Chemical	149,468	133,095	12.3	11,709	10,206	14.7	1.29
American Agricultural†	2,590	2,989	—13.3	900	1,122	—19.7	1.43
American Cyanamid	111,643	98,205	13.7	9,454	7,603	24.3	1.02
American Potash	6,715	5,923	13.4	837	532	57.3	1.33
Atlas Powder	14,714	14,481	1.6	742	658	12.8	1.13
Commercial Solvents	12,946	11,989	8.0	814	627	29.8	0.31
Diamond Alkali	24,534	22,223	10.4	1,633	1,365	19.6	0.66
Dow Chemical*	114,021	99,383	14.7	10,380	7,421	39.9	0.46
Du Pont	473,000	403,000	17.4	73,000	52,000	40.4	1.59
Freeport Sulphur	—	—	—	2,426	1,960	23.8	1.01
General Aniline & Film	28,791	24,500	17.5	787	244	222.0	0.95
Hercules	53,131	43,564	22.0	4,255	3,363	26.5	1.54
Hooker	12,418	10,079	23.2	1,136	908	25.1	0.32
Interchemical	23,771	22,042	7.8	843	723	16.6	1.09
Merck	38,800	37,150	4.4	3,900	3,516	10.9	0.35
Monsanto	102,176	82,931	23.2	8,758	5,889	48.7	1.63
Olin Mathieson	121,175	110,428	9.7	8,008	7,582	5.6	0.71
Parke, Davis	28,806	26,268	9.7	2,832	2,003	41.4	0.58
Pennsalt	15,095	13,557	11.3	874	753	16.1	0.70
Chas. Pfizer	41,128	37,318	10.2	3,877	3,438	12.8	0.75
Rohm & Haas	38,965	31,685	23.0	4,233	2,859	48.1	4.28
Spencer	12,387	10,214	21.3	2,043	1,494	63.5	1.68
Stauffer	22,147	18,076	22.5	1,580	1,124	40.6	0.67
Sun Chemical	9,765	9,537	2.4	251	192	30.7	0.19
Texas Gulf Sulphur	—	—	—	8,785	7,070	24.3	0.88
Union Carbide	263,041	220,990	19.0	28,397	21,444	32.4	0.98
Victor	11,463	11,282	1.6	904	939	—3.6	0.50

† Quarter ending April 3, 1955.
* Quarter ending Feb. 28, 1955.

Few Flaws in the Profits Picture

Output and sales are both still rising as chemical companies barrel deep into the second quarter.

Result: most company executives now predict record earnings for 1955, little chance of much downturn before 1956.

With virtually all companies reporting record sales for the first quarter of the year, the profits outlook for the year as a whole seems almost amazingly bright. Only sector of the chemical process industries currently struggling to keep pace: agricultural chemical companies, which have been gnawed by dual problems—reduced farm income and a prolonged southern railroad strike.

Two general indicators of just how good business is: according to the Dept. of Commerce's Office of Business Economics, chemical and allied sales in the month of February passed $1,812 million (as compared with $1,590 million in Feb. '54), while inventories dropped to $2,990 million (as compared with $3,080 million in Feb. '54).

Still Climbing: Even more promising—in the minds of most chemical executives: sales and output were still climbing in March and during the early weeks in April. Competition (which had been expected to throw a crimp in the sales picture earlier in the year) wasn't turning out to be as intense as predicted; overseas sales were far better than expected.

A few companies note the decrease in government contracts this year as "having a dampening effect" on sales; most, however, report that loss of government business is being picked up elsewhere.

Depreciation Rates Up: Despite the fact that most companies with heavy expansion plans under way (or completed within the past year) are taking depreciation in excess of normal rates, net after taxes rose materially during the first quarter of 1955. Examples: Du Pont's net earnings, up 40.4%; Hercules, up 26.5%; Spencer, up 63.5%; Carbide, up 32.4%.

Consensus is that this pace can't continue throughout the other three quarters of the year—but year-end nets should average some 10% above 1954.

SCHEELE: Will withhold relicensing of Cutter Labs' vaccine, pending . . .

Complete Check on Safety

Casting a damper on release of the Francis report a fortnight ago (CW, April 23, p. 42), Leonard Scheele, Surgeon General of the U.S. Public Health Service, now predicts it will be "at least two or three weeks" before a decision is made whether or not to re-release Cutter Laboratories' Salk vaccine.

Representatives from the Laboratory of Biologics Control, of the National Institute of Health, are in Berkeley checking through all process steps with Cutter personnel; other NIH field men are studying each of the cases of polio that has been reported among persons vaccinated with the Cutter material.

Assuming that, after review of the production steps and testing of samples submitted with the protocols, the Cutter vaccine is "proved not incriminated," NIH would relicense for sale. If, on the other hand, some blame can be laid on production practices, all vaccine would either (1) be destroyed, or (2) be reprocessed—assuming reprocessing is technically possible and economically feasible.

The government's concern is only with the safety and efficacy of the vaccine; if the company's product is condemned, the whole economic loss falls on Cutter.

Indefinable Damage: From Cutter's standpoint, however—even if it is cleared—the damage may have already been done. The public, frightened by the questioning of the vaccine, is also looking askance at other products of the company. Result: in the first 48 hours of uproar, the company's stock dropped from $14.25 /share to $12/share; sideline observers wondered whether Cutter could ever manage to regain its prestige in the minds of consumers.

(Cutter has had previous difficulties with NIH. Back in 1947, three persons, injected with some of its normal saline solution, died. PIH immediately cut off production, flew inspectors out to the Coast, but found nothing wrong with either production process or material.)

Backlash Anticipated: Casting another unhealthy glow on the whole affair: Public Health's Laboratory of Biologics Control is supposed to test every batch of biologics submitted to it—when a new material is involved. The department, however, was only running spot checks on Salk vaccine when the trouble arose; since then it's been feverishly running tests on every sample of material available—whether it's the product of an approved producer, or one not yet licensed.

This failure to test all batches submitted could well boomerang on Public Health. Some pharmaceutical makers are outraged at what they call "a shameful neglect of duty."

Snag on Crackdown

Chemical management is wondering this week whether the federal government's much-talked-about coming crackdown on mergers might not turn out to be—to borrow a phrase from current comments on the international situation—only a "paper tiger."

With Congressional critics yelling for action, the Federal Trade Commission and the Dept. of Justice have been doing their best to show that they're alert and zealous in patrolling the merger front. FTC is readying a report on the post-Korea wave of corporate mergers; and the Justice Dept. last week announced its third merger case—an attempt to annul Hilton Hotels' 1954 purchase of the Hotel Statler Corp.

But what the critics really want are decisions that someone violated the toughened-up law. And now FTC has hit a snag that threatens to put a real crimp in the trial of merger cases and may even make the merger law unenforceable.

Insisting on Rights: This obstacle popped up in FTC's attack on Crown-Zellerbach Corp. for having acquired St. Helens Pulp & Paper Co. two years ago.

What FTC wants to show is that this merger tended to "substantially lessen competition" in the paper business in the West. The agency asserts that a survey on purchases of coarse papers by 500 converters and jobbers in 11 Western states shows that Crown-Zellerbach had 50% of the sales, St. Helens 20%.

But so far, FTC lawyers haven't been able to put those figures in evidence, because Crown-Zellerbach has successfully objected to the move. Company lawyers say they have a constitutional right to confront every witness face-to-face and cross-examine everyone who provides information to be used in the hearings. This, they assert, would include each of the jobbers and converters who took part in that FTC survey.

Bringing in so many witnesses on one phase of a case, FTC moans, could add expensive complications and prolong the trial to the point where no real enforcement of the law would be achieved. But if FTC wants to show that a paper or chemical merger has reduced competition, it just about has to quiz all—or nearly all—of the principal customers.

RENI PHOTOS

WITNESSES FOR INDUSTRY*: On pollution control, they say 'no' on . . .

Federal Policing: 'Premature'

More test tubes, but still no policeman's club—that's the outlook for the federal government's role in air and water pollution control for the coming fiscal year.

As a Senate public works subcommittee goes into executive session this week or next to boil down various proposals for submission to the full Senate, it appears a pretty good bet that Secretary Oveta Culp Hobby of the Dept. of Health, Education & Welfare will be offered considerably less power than she has asked for in these fields.

This applies particularly to the requested authority that would put the federal government—through the surgeon general of the U.S. Public Health Service—into an enforcer's role, giving it the upper hand over the state and municipal agencies in setting and policing standards on pollution. Strongly opposed to handing such a club to the USPHS is the subcommittee's chairman, Sen. Robert Kerr (D., Okla.); and bolstering Kerr's position was the testimony presented at last week's hearing by two chemical industry spokesmen.

Two Bills Pending: Principal topics at the hearing were two bills that the subcommittee will now revise before taking them to the Senate floor:

- S. 890, introduced by Sen. Edward Martin (R., Pa.), to extend and strengthen the Water Pollution Control Act of 1948.
- S. 928, sponsored by Sen. Thomas Kuchel (R., Calif.), to amend that law to provide for federal government action on air pollution control.

Both are backed by Mrs. Hobby, and both lay stress on federal research. But beyond that, the Martin bill would give the surgeon general broad powers to direct pollution control work on interstate streams; and the Kuchel bill would make it federal policy to encourage uniform air pollution laws through a system of grants-in-aid.

Local or National Problem? Among the witnesses supporting Mrs. Hobby on these two bills was Patric Healy, Jr., executive director for the American Municipal Assn. But he ran into sharp questioning when he spoke up for the Martin bill. He maintained that cities will need help in financing the required sewage disposal facilities, and that the federal government should provide that help because pollution has grown into a national problem.

Presenting the opposite side of the argument were three witnesses from the Manufacturing Chemists' Assn.: Du Pont's Harold Jacobs, vice-chairman of MCA's Water Pollution Abatement Committee; Pennsalt's Walker Penfield, chairman, MCA Air Pollution Abatement Committee; and Allied Chemical's Raymond Hess, member and past chairman of the MCA's water pollution unit.

These witnesses declared that both air and water pollution are best handled on the local level. Jacobs attacked the Martin bill's provisions for federal control over streams that flow into interstate rivers, saying that this would be "overruling the sovereign authority of the states." Penfield asserted that a national law on air pollution would be "somewhat premature," because each community has different conditions of climate and topography and because air pollution is still not completely understood.

If legislation is to be enacted, they concluded, "our association strongly believes the place of the federal government is in the field of research and not in the field of control."

As of now, this viewpoint seems likely to prevail. Senator Kerr appeared to see eye-to-eye with the MCA witnesses; and observers predict that the subcommittee—and probably the parent committee—will go along with its chairman.

* MCA's Harold Jacobs, Raymond Hess, Walker Penfield.

Blank Check on Trade

Substantially all the tariff-cutting power he asked for will be handed to President Eisenhower after what may be a bitter fight on the Senate floor, it appears this week.

But chemical management—acutely worried about how imports of foreign chemical products may mount if customs duties are further reduced in these categories—last week got the President's assurance that he would use that new authority only with studied caution.

In every action that the President takes in the field of tariffs and trade, Eisenhower declared, he must consider the interests of all the people and their need for protection. The question of national security—a strong point in the chemical industry's argument for tariffs that will help preserve industries needed for possible defense mobilization—will be taken into consideration in every case, however, Eisenhower indicated.

Triumph for President: The 13 to 2 vote by which the Senate Finance Committee approved the Cooper bill (H.R. 1) signified the completeness

of the victory won by the President and the freer-trade bloc.

Amendments made by the committee are relatively mild. The duration of the act, the amount of new tariff-cutting authority, and the President's freedom of action are not significantly impaired.

The biggest Administration victory of all was the defeat of amendments curbing imports of specific commodities. The committee compromise merely reaffirms the President's constitutional power to curb specific imports if they threaten national security.

There'll be strong protectionist opposition on the Senate floor, but the bill is almost sure to pass just about as it is—which means that the President will be able to write his own ticket on tariffs.

COMPANIES . . .

Atlantic Refining Co. has licensed Kali Chemie, AG, of Hannover, Germany, to manufacture catalyst for use in the Atlantic Refining catforming process of making high-octane gasoline. Kali Chemi will build production units at its plant at Nienberg, Germany.

•

More company incorporations:

In Milwaukee, Wis., Form-Kote, Inc., with authorized capital stock of 1,200 shares of common, no par value.

In Madison, Wis., Oelwein Chemical Co., Inc., with authorized capital stock of 500 shares of common, at $100/share.

In Madison, Wis., Rockton Fertilizer Co., with authorized capital stock of 2,000 shares of common, par value $10/share.

•

Publicker Commercial Alcohol Co. of Louisiana has filed articles with the office of the secretary of state, Baton Rouge, changing its name to Publicker Chemical Corp.

•

Missouri Portland Cement Co. is planning a two-for-one stock split and an increase in authorized capital stock —from 500,000 to 1 million shares.

•

Olin Mathieson Chemical Corp. has organized two new divisions with headquarters in Little Rock, Ark. Official titles: Western Fertilizer Division and Western Sulphur and Acids Division.

EXPANSION

Polyethylene: Phillips Chemical Co. (Bartlesville, Okla.) will build a 145-million-lb./year ethylene plant at Sweeny, Tex., and polyethylene-producing units at Port Adams, on the Houston Ship Channel. Construction on both plants will start immediately; first unit of the Marlex polyethylene plant at Port Adams will be rushed to completion, and additional production units are scheduled for completion at intervals of several months.

Ethylene will be piped from Sweeny to Port Arthur; polyethylene will be made by a Phillips-developed low-pressure catalytic process revealed a year ago. No cost figures are yet available.

•

Brine Purification: Diamond Alkali Co. is rehabilitating its brine purification units at Painesville, O., at a cost of $1 million. Target date for completion: Oct. '55.

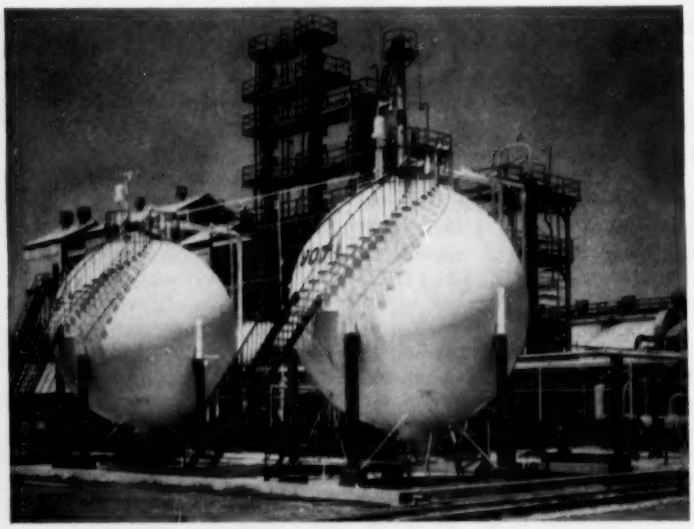
Newsprint: Powell River Co., of British Columbia, will spend another $20 million to build a ninth newsprint unit 90 miles upcoast from Vancouver. Estimated date of completion: fall, 1956; capacity: 125,000 tons/year.

•

Radioactive Isotopes: Radioactive isotope production at Abbott Laboratories' Oak Ridge plant will be tripled as a result of expansion work now under way. Estimated date of completion: Aug. '55.

•

Nitroguanidine: The Defense Dept. will build a plant for nitroguanidine (explosive to propel artillery shells and rockets) near Chouteau, Okla. Construction is expected to take between 12 and 18 months after initial contracts are let; chemical quality of Grand River (on which the plant will be built) water reportedly makes it particularly suitable for processes involved in manufacture of the explosive.



Formalities Observed

HARD ON THE HEELS of last week's first transfer of a synthetic rubber plant (*see cut*) to Esso Standard Oil Co. for $16 million came a flurry of other official title turnovers. Second largest of the former seven government-owned plants bought by Food Machinery & Chemical Corp. has changed hands, as have two Lake Charles, La., plants bought by Firestone Tire & Rubber Co., and Petroleum Chemicals, Inc.

Other plants purchased by private companies should be transferred within the next few days.

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A NEW ERA IN

Kings Mountain, N. C. (left), where Foote is mining and processing large deposits of spodumene which are shipped to Sunbright, Va. (right), the world's largest lithium chemical plant.

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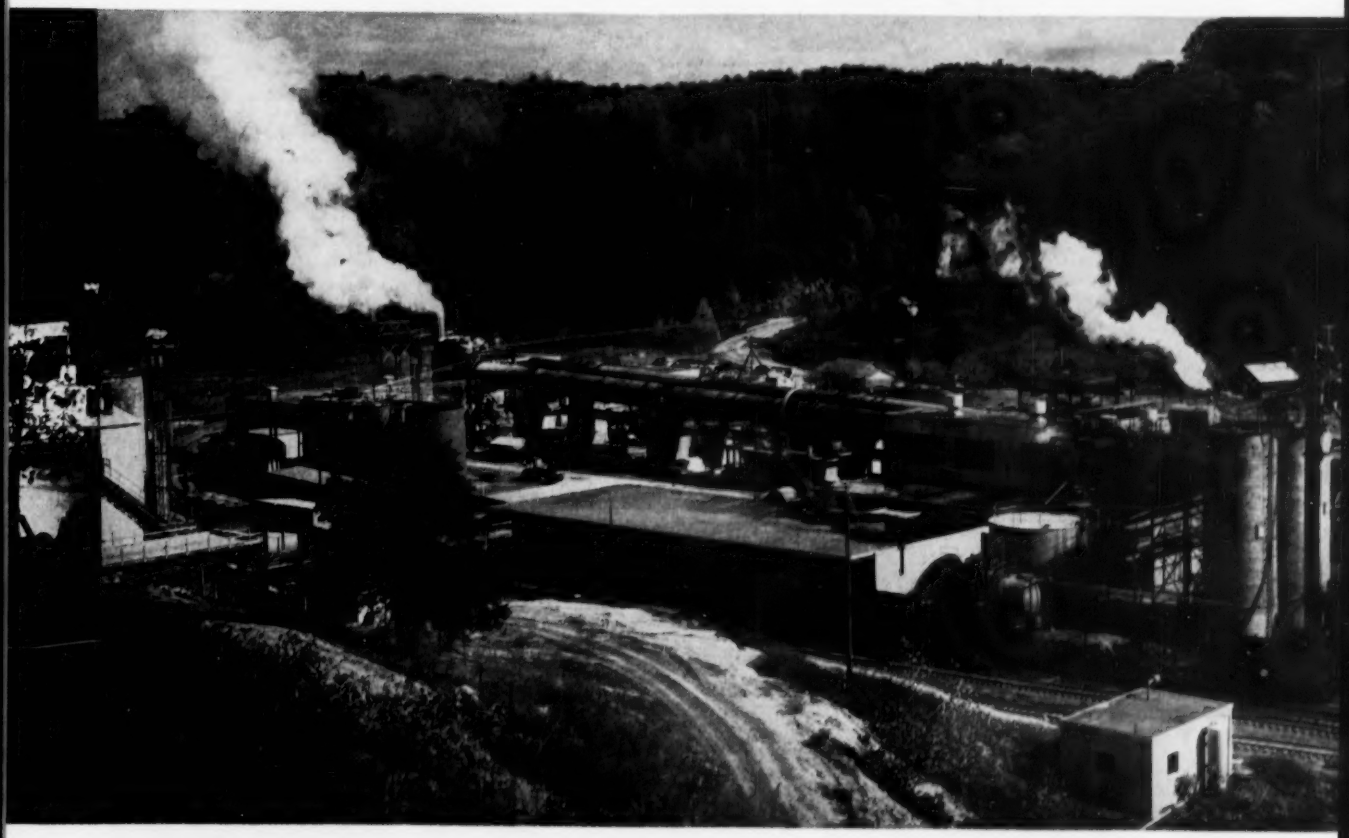

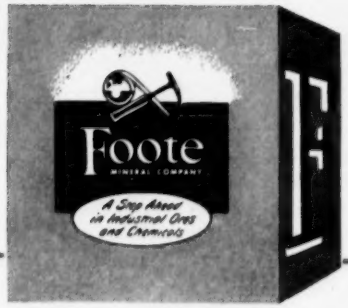

This new era of assured lithium supply presages a new era of technological advances in industry. Now is the time to implement your planned uses of Foote lithium —with the confidence that the chemically unique properties, and economically sound values of lithium are the bases on which to build new and improved products and processes. Foote is the place to start.

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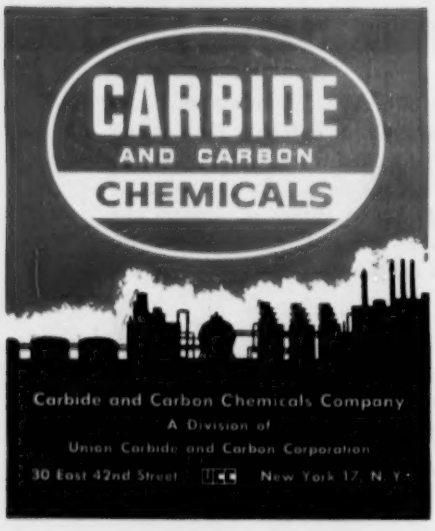

PHOTOS BY WALTER C. PAGE

PEACEFUL BUT PERSISTENT PICKETS: In 12-week strike at Wyandotte, a challenge to management—

Selling a Union on Solidarity

For an example of what can be done through determined—almost grimly so —efforts to win employees over to a spirit of company solidarity, chemical management from this week on will be watching closely what happens at Wyandotte Chemicals Corp.

Wyandotte—which has just gone through a strike that cost 12 weeks' production at the big soda ash-caustic soda plant in Wyandotte, Mich.—has resolved that during the life of its new labor contract with Local 12270 of United Mine Workers' District 50, its management, supervisors and foremen will concentrate on trying to sell the production and maintenance workers on teamwork for mutual benefit.

The tactics to be used and the results obtained will make a valuable case study for the industry as a whole—although probably the main lesson to be drawn from the case would come under the "ounce of prevention" category.

As usual, each side holds the other responsible for the strike. But Wyandotte management also indulges in a certain amount of self-criticism, acknowledges that it had left undone some things that—in retrospect—it now feels it ought to have done.

Two Related Problems: When present Wyandotte management took charge of the company about two years ago, it faced two serious problems that—in the light of recent developments—can be regarded as interconnected:

- Wyandotte's competitors seemed to be gaining in the competitive race.
- Wyandotte's labor force—though a stable one with many years of company service—had come to view management with some distrust and hostility, as reflected in the views of the men chosen as leaders of the local union.

Management now admits that in tackling the first problem, it tended to neglect the second. For example, the company says, it apparently didn't take enough time to explain to everyone in advance why it was essential to step up efficiency and productivity, and why there was a stiffening of standards for plant and equipment

MAYOR KREGER; UNION CHIEFS DISTIFANO, TORANGO, BADOUD: His city hurt, their members broke.

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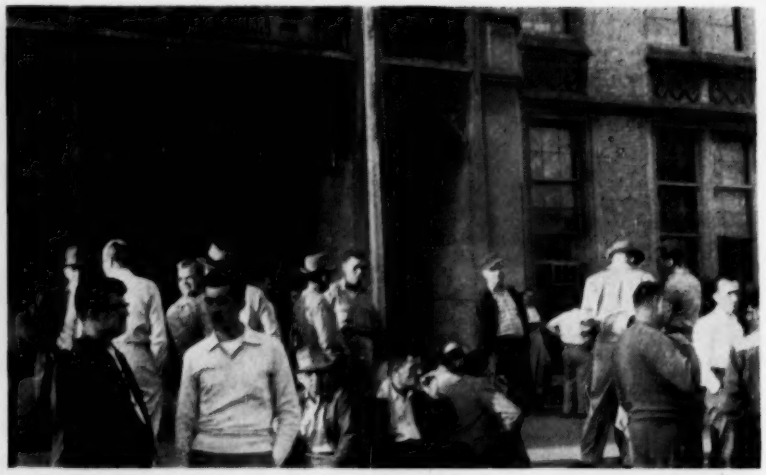

STRIKERS' MEETING: After concessions from both sides, a vote to settle.

maintenance. It can be argued that responsible union leaders should feel an obligation to explain such matters to their members; but in any event, it seems the employees didn't get the word – and there were 12 wildcat strikes at Wyandotte in 18 months.

Challenge: Who's Boss? As to immediate causes of the 2,300-man strike, news stories listed such issues as overtime, wages, job-bumping and a no-strike clause sought by the company as blocking settlement. All true, but there were other and more basic reasons.

Possibly the biggest hidden issue: the attempt by some unionists to move in on management's traditional responsibilities and prerogatives.

Once the strike began, other issues – which could have been settled readily in normal bargaining – flared up as major obstacles to agreement. On wages, the union originally asked a monumental 40¢ increase, eventually accepted boosts ranging from 5¢ to 11¢/hour. The union agreed to encourage employees to accept overtime work assignments, and promised not to strike without clearance from UMW headquarters.

In labor unions, solidarity has long been cited as a cardinal virtue. Wyandotte is hoping that its employees – who lost more than $2.5 million in wages and saw their town's economy disrupted by the strike – now can be sold on the desirability of solidarity with the company for a sounder future.

AT STRIKE'S END: For picket captain and two pickets, post-mortem coffee.

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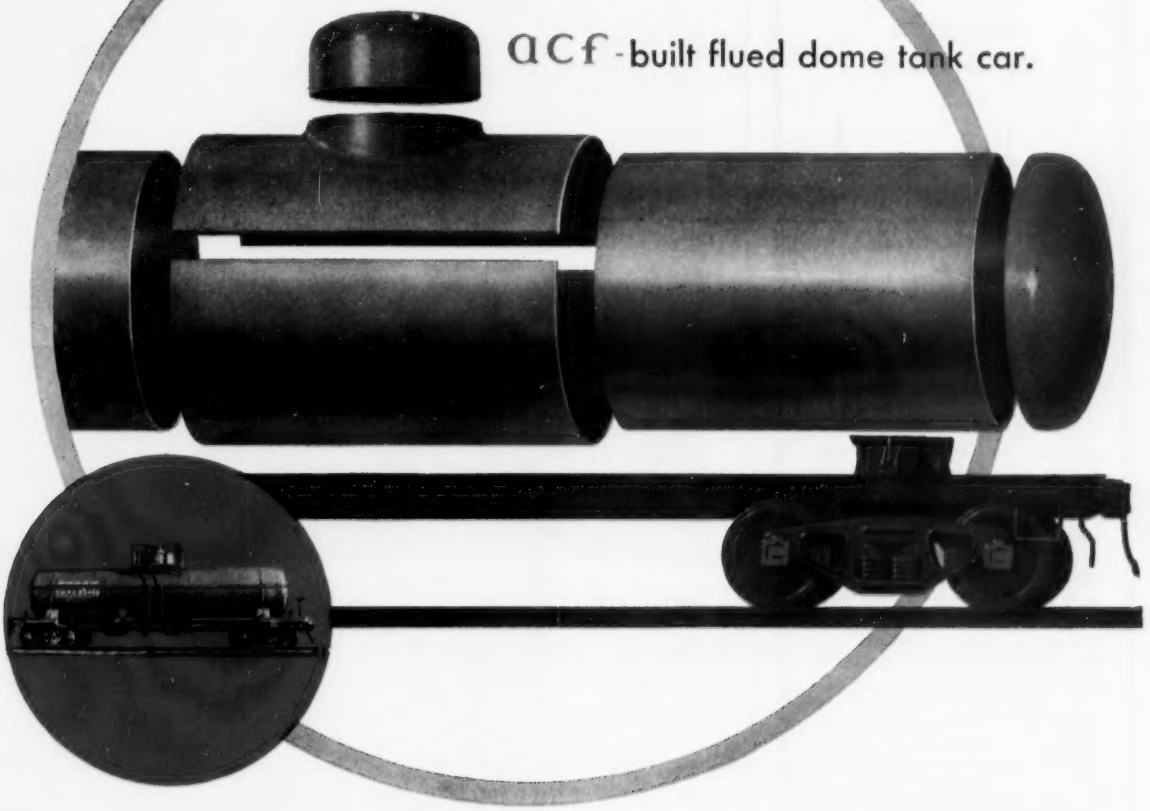

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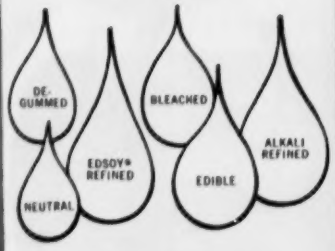

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For information about other quality Staley Industrial products, Soy Flours, Starches, Lecithin, Corn Syrup, Corn Steep Liquor, Amino Acids, etc., write:

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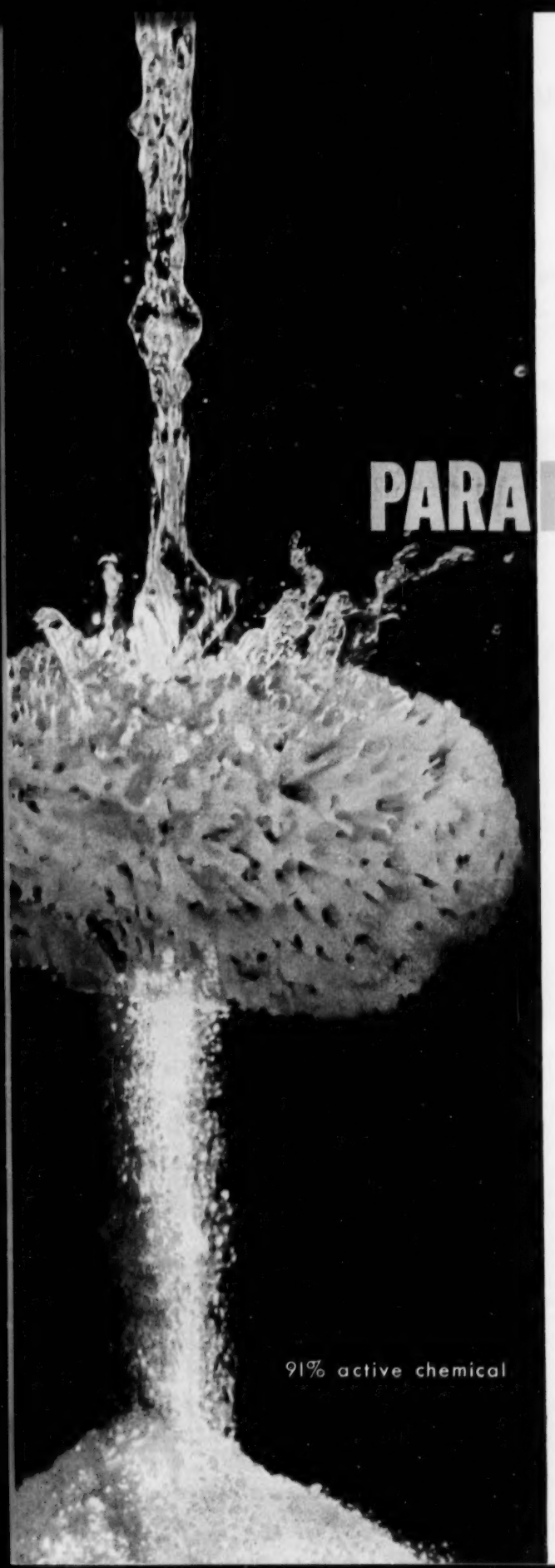
Tracking Down the Taints

NORTH AND SOUTH, by land and by sea, local governments are using scientific methods to track down air-borne and water-borne contaminants to find out what they are and what neighborhoods and factories they come from. Above, Philadelphia officials inspect air-sampling equipment on the roof of the city hall annex; below, water samples are taken in Charleston, S. C., harbor.

WIDE WORLD PHOTOS



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CHEMICAL PROGRESS WEEK—MAY 10-17

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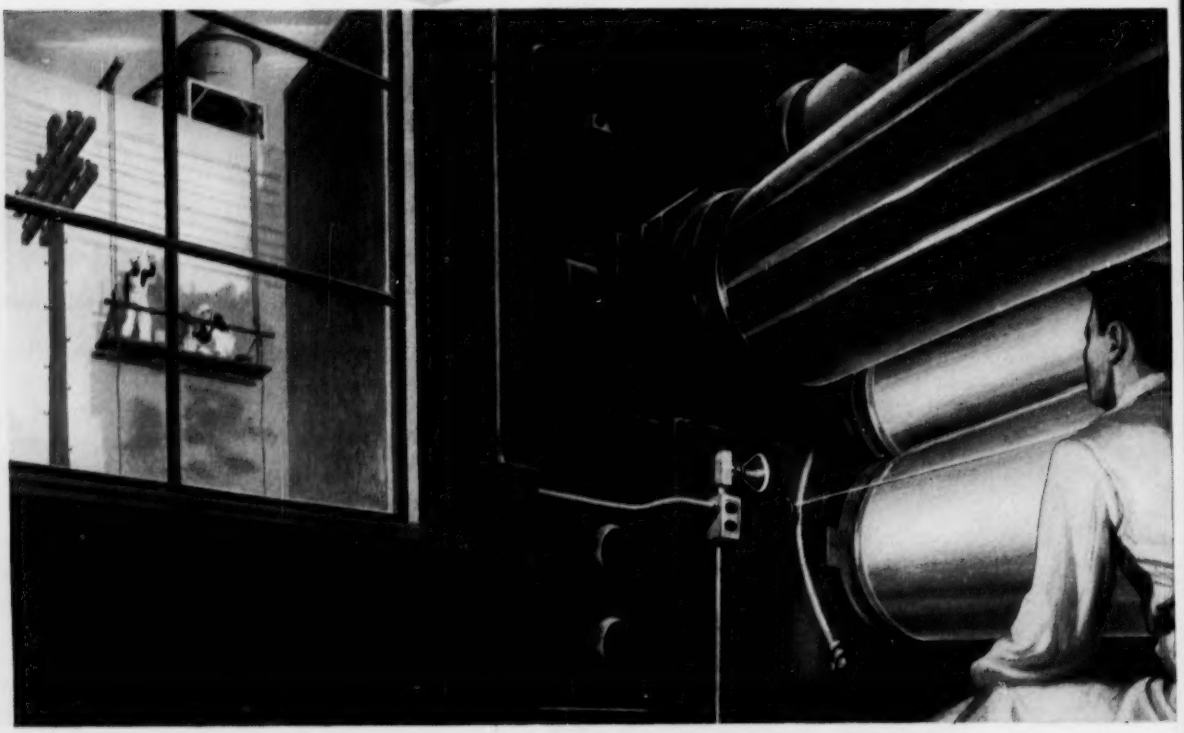
PARAFORMALDEHYDE • FORMCEL* SOLUTIONS
FORMALIN • TRIOXANE

EXON RESINS: each one engineered for

Specific Problems



EXON 402-A

specifically to wipe out **CORROSION**

Base resin can be processed into a variety of useful forms, such as sheet pipe and rods. Unplasticized PVC resists industry's most corrosive conditions.

EXON 905-915-925

specifically for **PROCESSABILITY**

Temperature-tailored, they free your processing from restrictions due to temperature limitations. Blend speedily, fuse quickly into top quality products.

EXON 471

specifically for **WEATHERABILITY**

Unmatched for durability in a protective coating. Corrosion resistant.

EXON 500

specifically for **WIRE INSULATION**

Superior electrical properties; color, heat and light stability.

EXON 700 XR-59

specifically for **IMPREGNATION**

Exceptionally fast-fusing latex, compatible with conventional vinyl chloride plasticizers. Resultant films resist grease, oil, water, light.

Firestone

Chemical Progress Week May 16-21

and Specific Uses

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specifically for **STRIP COATING**

Good solubility, film tensile strength and durability allow formulations to be based on this one resin alone. Coatings can be spray-applied, and strip off cleanly and easily.

EXON 470

specifically for **SOLUTION COATINGS**

Has excellent adhesion to metals, alkyd and vinyl surfaces. It is compatible with various drying oils, alkyds, phenolics and melamines. Highly soluble in ketone solvents and has good aromatic tolerance.

EXON 468

specifically for **FLOORING**

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specifically for **PLASTISOLS**

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ALL RESINS in the ever-growing EXON line bring you short cuts to finer products.
Specific data on these resins are available to you on request. Call or write today.

CHEMICAL SALES DIVISION
FIRESTONE PLASTICS COMPANY, POTTSTOWN, PA., DEPT. 4N
DIVISION OF THE FIRESTONE TIRE & RUBBER COMPANY

FREE TRADE? NO, SAYS AUTHOR, UNLESS—

1. **Producers in different countries have comparable tax rates.**
2. **A universal monetary system is in effect.**
3. **All countries have uniform business laws.**
4. **All countries have similar codes of business ethics.**
5. **All countries have uniform wage rates.**
6. **Workers can migrate freely throughout the world.**
7. **There's assurance of world peace.**
8. **A world government is operating to maintain these conditions.**

Converter of Chemicals—and Men

Out of these new converts, Shakespeare once remarked,* there is much matter to be heard and learned. And so it is with Lewis Lloyd, head of business research for Dow Chemical Co., who came out of college as a "free trader" and has now swung far enough to the other side to have devoted most of his spare time for the past two years to the writing of a book to be published next month: "Tariffs: The Case for Protection."

Inasmuch as Dow and other chemical concerns feel a need for a certain amount of tariff protection, this book is likely to be picked up by the industry as a convenient new weapon in its fight against what it considers unfair foreign competition. In fact, the Dow company has already ordered some 5,000 copies of Lloyd's book for distribution to company officials and others; and it's possible that other business groups may order supplies of their own.

Working within the chemical industry has brought about two "conversions" for Lloyd: from free-trader to protectionist, and from research chemist to economist. It was as a chemist, with a doctor of science degree from the University of Michigan, that he came to Dow in 1937; but having studied economics and social sciences as well, he was able to branch out into business research.

Prof's Views Prevailed: In college, Lloyd explains, he and his fellow students generally went along with the opinions of their economics professor, who happened to be a free-trader. And while he was working in the Dow laboratories, he never had occasion to reconsider those views.

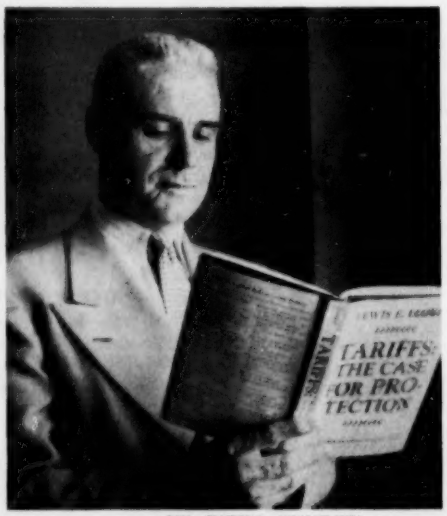
But Lloyd moved on into company administration, and it happened that he was the one occasionally consulted by the authors of the biography of the Dow company's founder† when they needed help in understanding technical matters. At one such question-and-answer period, after those authors had received an explanation of the Dow method of producing low-cost phenol, they asked Lloyd why Dow's correspondence indicated alarm about chemical imports. Lloyd had to admit that he didn't know, but said he'd find out. In exploring the problem, Lloyd says, he saw that his own position was based on false premises.

Free trade, Lloyd goes on, works well among the 48 states of the Union because approximately the same business conditions—tax rates, wage rates, currency system, business laws and practices—are in effect in all the states. In this situation, there's fair competition among manufacturers, and industry is free to make use of whatever natural advantages—such as presence of raw materials—are available. But, Lloyd points out, there's no such uniformity among the various nations of the world at present.

Recommendations: Not wishing to be labeled as just an "aginner," Lloyd has worked out these suggestions for future U.S. foreign trade policy:

- Keep present tariff rates in effect for an "adequate" testing period, to determine whether further reductions are desirable.
- Set tariff rates so that they place foreign producers on an equal cost basis with U.S. producers.
- In negotiating reciprocal trade agreements, insert a clause to keep other countries from negating the effect of their tariff reductions by applying other import restrictions.
- Return to Congress the responsibility for administering tariffs.
- Participate in GATT or similar agencies only on the basis of consultation.
- Improve the wording and enforcement of U.S. antidumping laws.
- Encourage other nations to adopt convertible currencies and to reduce restrictions on imports.
- Except for U.S. defense projects, let private sources provide capital for foreign business ventures.
- Always consider national defense in formulating trade policy.

Lloyd says his book is the first thoroughgoing exposition of the protectionist point of view, and is written for laymen. If the book succeeds in persuading its readers, the chemical industry—up to now a converter of chemicals only—may turn out to be an indirect factor in converting voters and statesmen on the tariff issue.



LYN CRAWFORD—McGRAW-HILL

AUTHOR LLOYD: In tariff fight, his book is weapon for industry.

* "As You Like It," Act V.

† "Herbert H. Dow, Pioneer in Creative Chemistry," by Murray Campbell and Harrison Hatton, 1951.

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Pale Color

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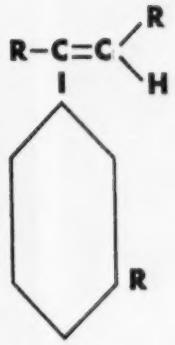

PICCOLASTIC RESINS

24 standard grades—polymers of styrene and its homologues

Piccolastic Resins are made in five series and twenty-four standard grades. They are polymers, in a wide range of average molecular weights, of styrene and its homologues.

They possess sufficient pale color so as to be suitable for the majority of uses. The entire line is soluble in aromatic hydrocarbons.

The Piccolastic Resins, with the exception of one type, are wholly hydrocarbon in structure, and therefore are alkali and acid resistant to a high degree, do not support mold or other fungus growth, and are not subject to enzyme reaction.

The Piccolastic Resins are permanently thermoplastic, and because of their heat stability at temperatures up to at least 175 C, make excellent stable, hot melt compounds.

Piccolastic Resins vary from viscous liquids through tacky solids, brittle solids to resins of hard horny toughness. Intermixtures of the various items permit an unlimited range of properties.

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IN ACCRA: Over 5,000 eager Gold Coasters per day queue up to see proposed dam, power station, aluminum smelter.

Show with a Purpose

Part of the government's obligation to the people is an explanation of contemplated industrialization projects. That's the theory behind the creation of the traveling exhibition now touring back-country towns of Africa's Gold Coast.

Contained in a large marquee, the exhibit includes models of the proposed Volta River Project, which would supply sufficient electric power to launch the Gold Coast on a major aluminum-producing program.

Explanatory booklets in English and six vernacular languages are available to all comers; it's the avowed aim of Gold Coast governmental officials to reach as many people in the country as possible with full details about the scheme.

This year alone, the show (manned by a crew of 30, and transported by its own fleet of vehicles) will visit 36 major cities—finishing up its circuit late next October.

Day of Decision: Reason for all the elaborate preparations, government spokesmen say: Though it's been decided where the country's big dam and smelter would be built, no one has yet given an official go-ahead. The move would be of enormous economic benefit to the South African colony, "but its political and social factors are open to question."

That being the case, the government feels it owes even the most backward of its citizens the chance to consider the plan.

Drawing Huge Crowds: Reaction among tribal chiefs and white citizens alike has been unanimous: regardless of what decision is reached, it's the best traveling caravan the Gold Coast has ever seen.

ILLUMINATED MODELS explain bauxite mining, show how the Volta River can be harnessed.

NEVILLE RESINS

are at home in every-day household items

When the woman of the house applies a new coat of aluminum paint to a radiator, or walks on mastic or rubber floor tile, or steps down to the basement on rubber stair-treads . . . she unconsciously proves the worth of Neville Resins! For it's these modern resins that add long life and wear to countless every-day household items, to say nothing of extra beauty and sales appeal so necessary to the manufacturer of such products.

• *We will be glad to help you select the right Neville Resin for your particular production need.*

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Plants at Neville Island, Pa., and Anaheim, Cal.

C5

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SEARLE: Sees U.S. petrochemical capacity as adequate, but sorely . . .

Vulnerable to Attack

Speaking before the Midwest Chapter, Armed Forces Chemical Assn., in Chicago last week, Col. Victor C. Searle (Chemical Corps) offered a somber warning to chemical producers. Plant dispersal criteria, he claims, are now badly outdated in view of recent fallout information. The threat of nuclear attack presents a whole new dimension of problems—one the industry must face squarely—and soon.

Management must add "vulnerability to nuclear attack" to the list of factors tossed into the grab bag when a new plant site is chosen. No one questions economic considerations in plant site decisions; in today's atomic age it's up to chemical executives to give equally sober thought to dispersion.

Adequate Warning: Actually, he points out, chemical companies have had a number of years to reorient their thinking.

In fact, the problem of industrial concentration was the basis of President Truman's National Dispersion Policy of 1951 establishing standards for certificates of necessity, allocation of critical materials, and requirements for grants of emergency loans.

The Truman policy was not as effective as the government would have desired, however. Reason: by the time it was implemented in 1952, a high proportion of the tax write-offs had been granted; the big postwar expansion splurge was slowing down. Result: in certain sectors of the industry (mainly petrochemicals), the U.S. is today highly vulnerable to nuclear attack.

Attractive Target: Most tempting target area to would-be attackers set on knocking out U.S. production would undoubtedly be the Houston-Beaumont-Port Arthur triangle, Searle goes on.

Latest estimates place 80-85% of U.S. petrochemical production in that area—from about Corpus Christi up the coast to Lake Charles, La., and over to Baton Rouge. As would be expected, this area coincides with a heavy concentration of the petroleum refining industry, making it a doubly attractive target.

Of all the certificates of necessity issued for organic petrochemicals, 39% have been in the Houston-Beaumont area; an additional 18% were for construction of plants in cities that the Federal Civil Defense Administration considers "critical cities." Examples: the number of plants with high benzene-toluene output near Philadelphia, and the plants satellited around Gulf's large ethylene capacity at Port Arthur.

There are smaller (but similar) concentrations around Los Angeles, San Francisco, Chicago and St. Louis. And the seaward location of most of them makes them additionally open to submarine-launched guided missiles or air attack.

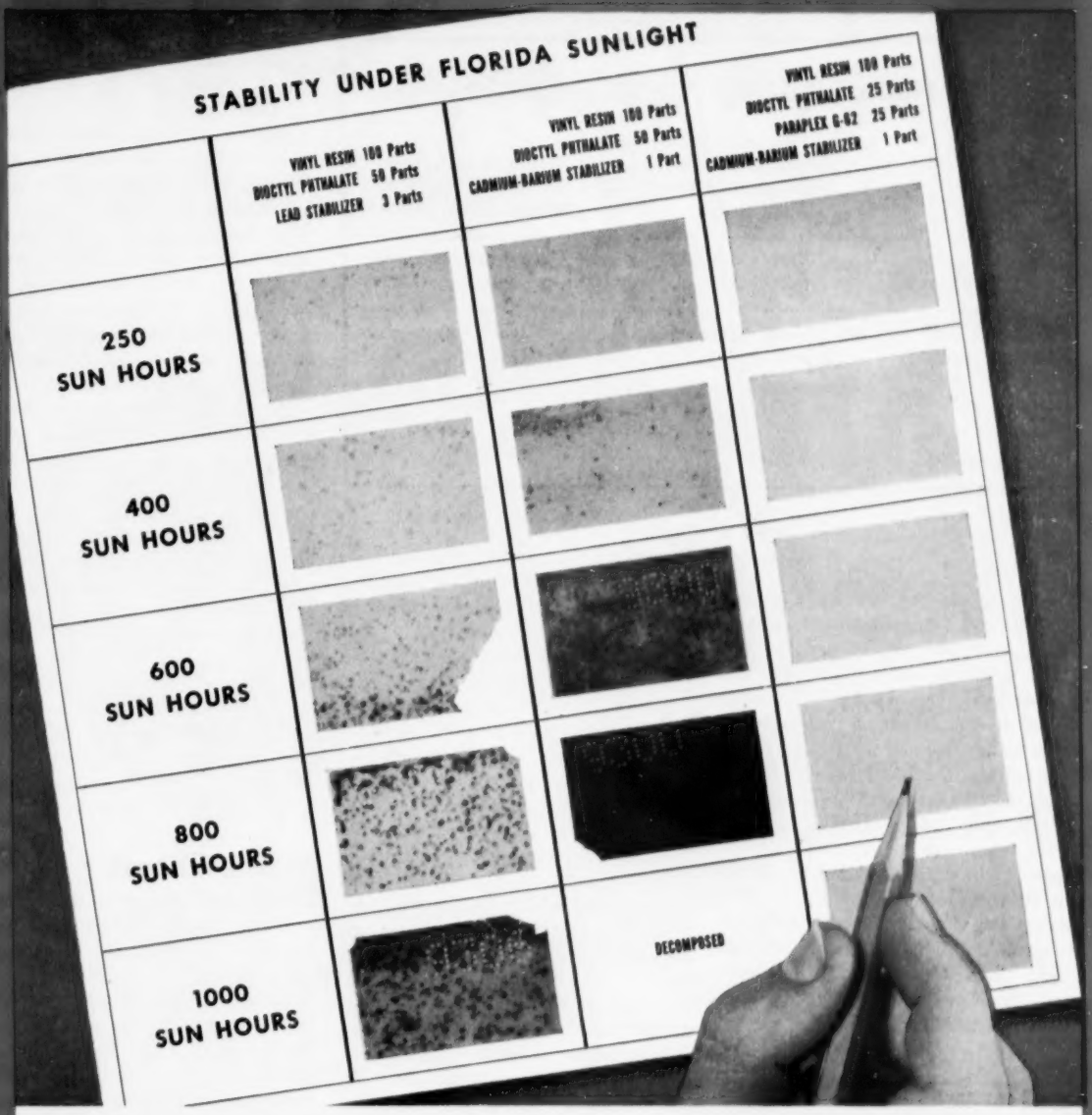
What to Do: Like any other ticklish problem, Searle concludes, half the plant dispersal danger is licked when management becomes aware of the danger it's facing.

For example: allowing that benzene-toluene production must be tied in with refinery operations, there are 30 U.S. refineries—with daily refining capacities of 20,000-80,000 bbls./day—located in nontarget areas. Comparable situations obtain for firms considering construction of other chemical-producing units.

Offered a choice of locations (and apprised of the danger of encouraging concentration), management can do a great deal to solve the situation itself.

Several companies have gone even one step farther—to the stockholder—in backing dispersal policies.

For the majority, however, there's still a long way to go—if the U.S. is to meet the threat of nuclear war.



Florida Sun Proves Value of Paraplex G-62

The stabilizing effect of PARAPLEX G-62 in vinyl compounds was dramatically demonstrated during recent tests under intense Florida sunlight. The samples shown here were exposed for periods ranging up to 1000 sun hours. The improvement imparted by PARAPLEX G-62 is clearly shown by the exposed samples.

In other tests in the field, as well as by Weather-Ometer, Fade-Ometer, and 450°F. oven tests, the results were similar: outstanding resistance to embrittlement and discoloration when PARAPLEX G-62 plasticizer-stabilizer was used.

PARAPLEX G-62 polymeric-type plasticizer also permits fast calendering and low stabilization costs. It provides uniform color and excellent permanence.

Write for "What You Should Know About the PARAPLEX *and* MONOPLEX *Plasticizers", a handy summary of properties and applications.*

CHEMICALS FOR INDUSTRY

ROHM & HAAS COMPANY

THE RESINOUS PRODUCTS DIVISION

Washington Square, Philadelphia 5, Pa.

Representatives in principal foreign countries

PARAPLEX *is a trademark, Reg. U. S. Pat. Off. and in principal foreign countries.*

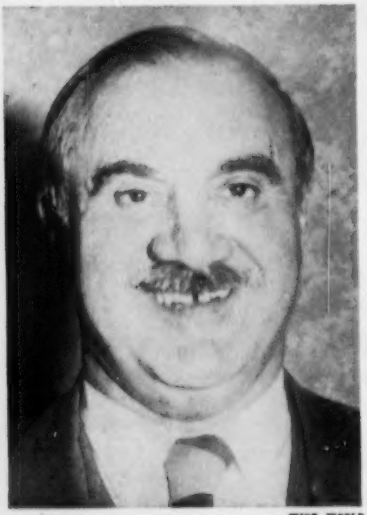
FISCAL FIGURES TO BE UNVEILED

Items covered by order	Records to be produced by Lever Bros. and Procter & Gamble	Records to be produced by Colgate-Palmolive
Tallow, grease, coconut oil, phosphates	Factory costs, delivered costs, unit costs	Unit costs, unit cost comparisons
Finished soap and detergent products	Total costs to make and sell	Estimated unit costs, finished costs, factory costs, delivered costs, total costs to make and sell (exclusive of delivery expense)

'Big 3' to Open Books

Trudging along toward a trial that is expected to begin about one year from now, the federal government's civil antitrust suit against the "Big Three" soap makers has been expedited by the court's suggestions on data to be disclosed by the companies—a matter that had been in dispute most of the time since this suit was filed near the end of 1952.

This week, the Justice Dept.'s Antitrust Division is scheduled to submit to attorneys for the three defendant companies a series of questions about market conditions between 1946 and 1952; and the defendants are to provide answers by May 15. The government expects to complete its "discovery" or fact-finding work in June, after which the companies will have their turn at that phase. Pretrial conferences are in prospect for late this fall, so that the trial conceivably could begin by next spring.



WIDE WORLD

JUDGE MODARELLI: To detergent and soap firms, an order to show data.

This is the case in which the Justice Dept.—at that time headed by Democratic Attorney General James McGranery—charged that Lever Bros., Procter & Gamble, and Colgate-Palmolive had been monopolizing the household soap and detergent business and preventing new producers from getting a foothold in the business. McGranery proposed that the court should order these companies broken up into smaller units, and the Republican Administration has carried on the prosecution, albeit calmly and quietly. The defendant companies have denied that they're violating the law, and ask that the suit be dismissed. The case is pending in U.S. District Court, Newark, N.J.

Fourth Amendment Cited: The soap companies' first line of defense was an attack on the methods used by the government in getting information on which to base its charges. Speaking for P&G, attorney Kenneth Royall—former Secretary of the Army, 1947-49—asserted that the government had used information from papers that had been subpoenaed from the companies during an earlier grand jury session called to consider a possible indictment under the Sherman Act's criminal provisions. When the grand jury declined to issue an indictment, Royall said, the government used those company records in launching this civil suit; this, he contended, "was an abuse of process in violation of the Fourth Amendment." He urged that the firms not be ordered to dig out all those records again.

However, Judge Alfred Modarelli ruled that the government's procedure had not been illegal, and that government lawyers should be allowed to have another look at those records and also inspect certain other company data sheets. Several months ago, Judge Modarelli made suggestions as to what figures should be revealed, and now he has signed three orders—one to each company—that amount to stipulations between the government and the companies as to the records the government wants to see and those that the companies have and are willing to produce.

To chemical process management, the sooner this case is tried and decided, the better; it has considerable potential significance now that antitrust enforcement is in the national spotlight. In this industry, it's not unusual for a few companies to account for nearly all of U.S. production of a given item—just as the "Big Three" soap firms are alleged to have been producing 75% of the country's household soap and 90% of its detergents.

Holey Cheese

Despite U.S. hopes to the contrary, it looks now as though any German anticartel legislation will have to wait until sometime in 1957. Reason: the issue has recently become a political hot potato, and major government parties are facing a national election in early '57. Further: industry (whose campaign contributions are a major support for political aspirants) has made it patently clear that it will not financially support any deputy who votes for strict cartel legislation.

To U.S. chemical companies, this delay could be a serious blow. Encouraged in past months that the Bonn government was pledged to slow down recartelization of German industry, many small organic chemical producers have been eagerly awaiting submission of the government's draft law (three years in the making) to the Bundestag.

Now, however, after strong opposition developed in the government coalition, the draft law has been turned back to committee. Good bet: there it will rest until the end of the summer recess.

Watered-Down Version: Actually

Tri-Sure® equipped drums are another feature of TRETOLITE CHEMICALS

When an oil producer or refiner needs help with a demulsifying, corrosion, or desalting problem, they can be sure a Tretolite product will do the job—because it's made right . . . it's delivered fast . . . and its purity is protected in *Tri-Sure* equipped drums.*

The Tretolite Company, maker of fine chemicals for the petroleum industry, has built its reputation on *service.* And as part of that service—part of a policy that protects customer's needs—is Tretolite's insistence on *Tri-Sure Closures on every drum.*

If *dependability* is a feature of your products, ship them in *dependable packages*—drums that deliver a pure product every time, because they are sealed from leakage and contamination by Tri-Sure Closures.

When you order drums, always specify "Tri-Sure Closures"—a good way to build good will.

*The "Tri-Sure" Trademark is a mark of reliability backed by over 30 years serving industry. It tells your customers that genuine Tri-Sure Flanges (inserted with genuine Tri-Sure dies), Plugs and Seals have been used.

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Tri-Sure Products Limited, St. Catharines, Ontario, Canada

POLYCO NEWS

GENERAL EDITION

POLYCO ANNOUNCES 3 NEW PVA EMULSIONS

PEABODY, MASS. Once again the Polyco Department of The Borden Company has led the field in the development of new polyvinyl acetate emulsions with special characteristics not previously available. This is another step in Polyco's program to expand what is already the most versatile PVA family in the industry. A report on each of these 3 new emulsions follows:

NEW POLYCO 577G

for outstanding water resistance

Here is a 55% solids anionic type polyvinyl acetate emulsion designed primarily for interior flat paints . . . and for coatings for textiles and paper. It deposits a film with outstanding water-and-scrub-resistance, and will not blush when wet. Pigment compounding characteristics are excellent, and film formation is good. Borax compatible . . . and also has good color stability at high temperatures.

NEW POLYCO 612

for maximum compounding versatility

It's the new "60% solids" anionic type PVA emulsion especially developed for coatings and adhesives that require a high solids compound. Water resistance, scrub resistance, and color stability at high temperatures are good. It is borax compatible. And it permits economies in shipping and inventories while having maximum compounding versatility.

NEW POLYCO 679

for water-resistant adhesives

A 55% solids anionic type emulsion developed for use in non-discoloring high temperature heat-seal adhesives. Easily compounded with starch and natural gums . . . yet it has good water resistance, too. This new Polyco is also borax compatible, and has good scrub resistance.

For further information and samples of these new PVA emulsions, just write The Borden Company, Chemical Division, Polyco Department, CW-55, Peabody, Mass. And remember, whatever your needs, it pays to make Polyco responsible for all your polymer requirements. For Borden's Polyco experts have wide experience in polymerizing *all* resins . . . and personalizing particular polymers for your specific applications.

POLYCO DEPARTMENT
THE BORDEN COMPANY, CHEMICAL DIVISION
101 FOSTER ST., PEABODY, MASS.

ERHARDT: Will probably compromise on final cartel draft law.

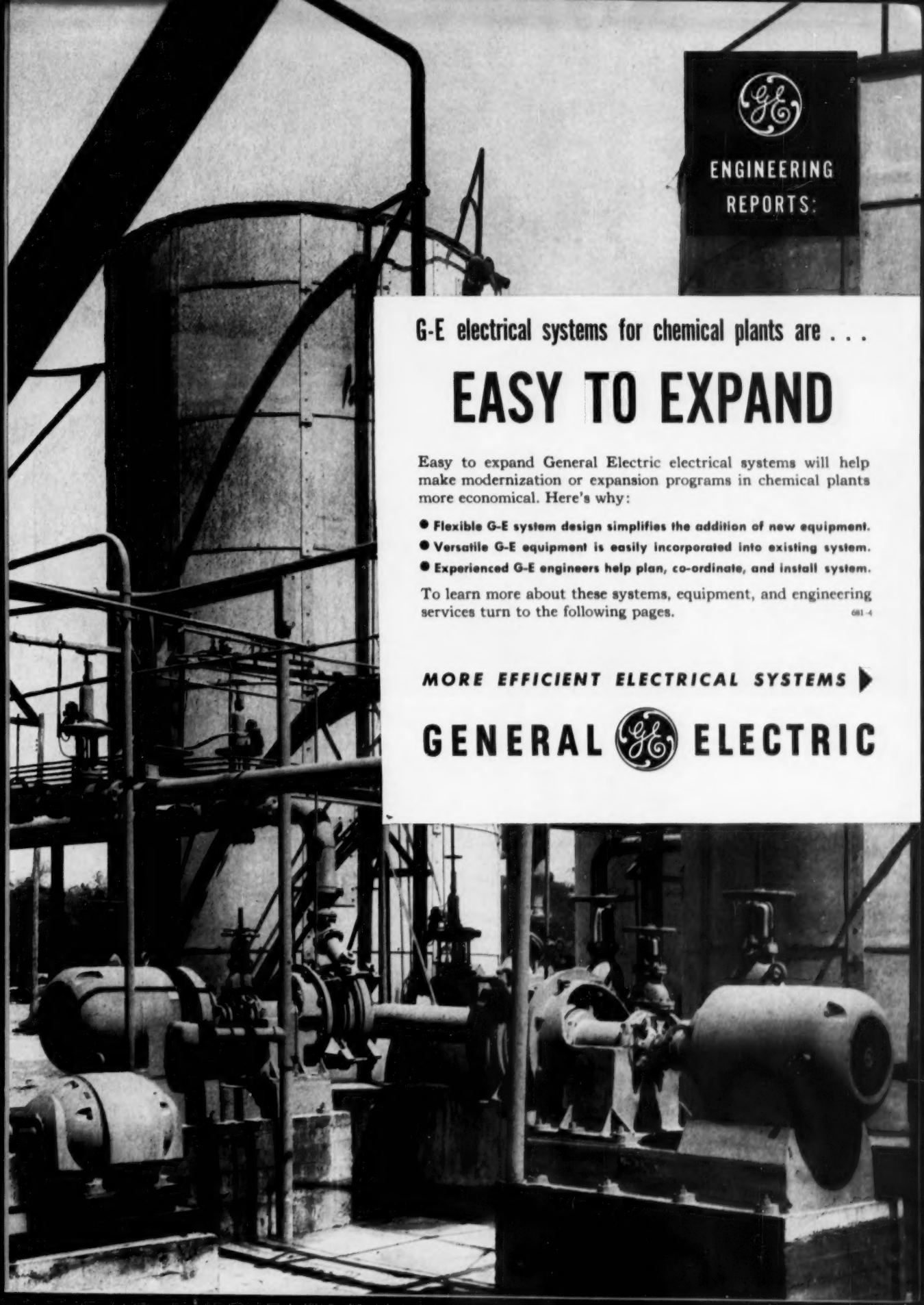
the final version of the government's cartel cure (prepared by Minister of Economics Ludwig Erhardt) was in answer to a promise to the Western Occupation Powers that Parliament would enact legislation to replace that of the Allies forbidding resurrection of cartels. The Allied law admitted only one exception to the ban: cartels could be formed "in the public interest."

Erhardt's original intention was to prepare a bill that would repeat in detail the terms of the Allied law. But strong industry opposition to the plan developed, and as a result, he progressively modified his draft until the final document was described as consisting of "more holes than cheese."

Principal threat to acceptance of the Erhardt draft came from inside the government. Some members opposed any ban on cartels, advocated instead a law that would only punish abuses by cartels. Result: submission of a "misuse" draft, which has also been referred to a committee in the Bundestag for consideration.

German chemical companies (on the sidelines) are strangely quiet over the whole affair. Reason: many of them are not especially eager to re-cartelize at this time, fearing that if the German chemical industry were reunited, it would then be open to Socialist attempts at nationalization.

Often heard these days in German top-management circles: "Why do we need cartels as long as we have telephones?"



G-E electrical systems for chemical plants are . . .

EASY TO EXPAND

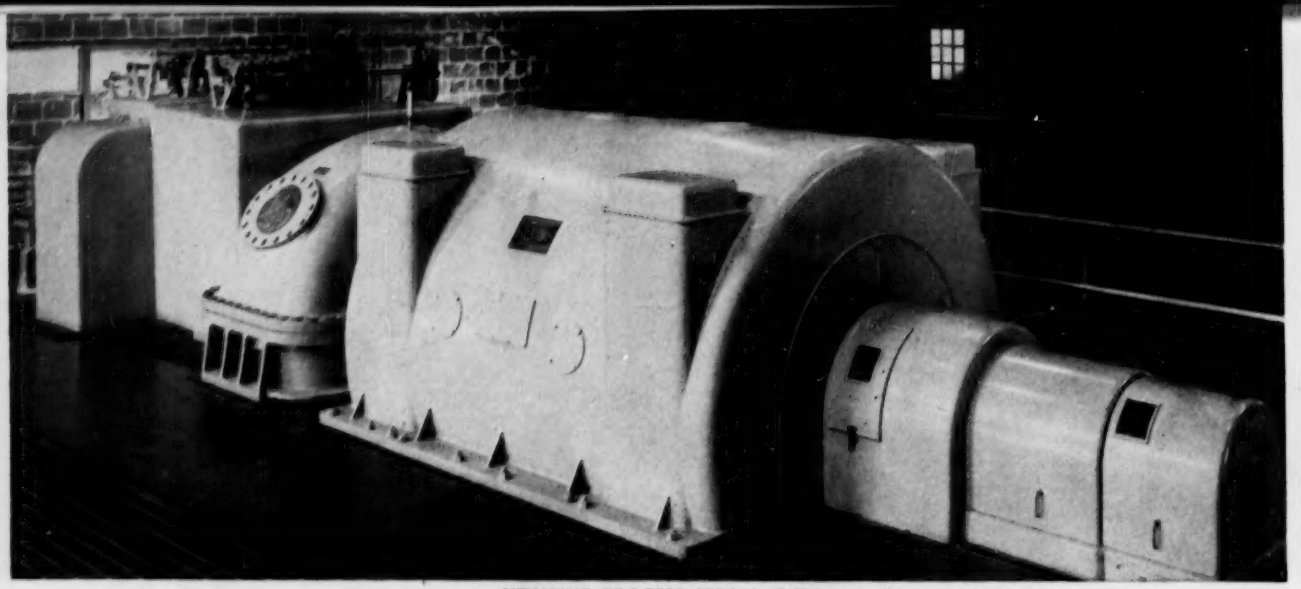
Easy to expand General Electric electrical systems will help make modernization or expansion programs in chemical plants more economical. Here's why:

- **Flexible G-E system design simplifies the addition of new equipment.**
- **Versatile G-E equipment is easily incorporated into existing system.**
- **Experienced G-E engineers help plan, co-ordinate, and install system.**

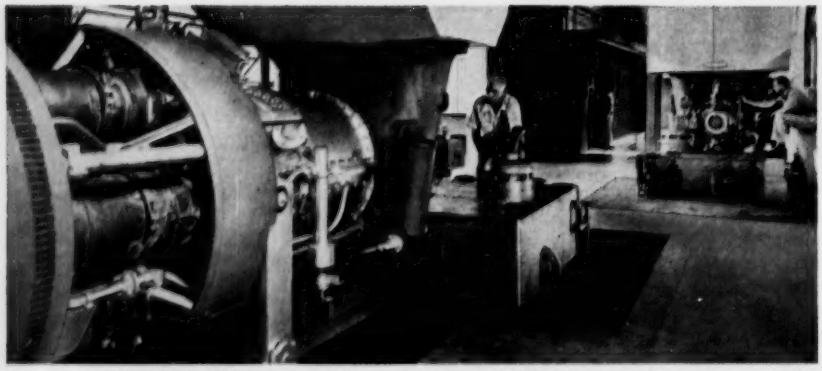
To learn more about these systems, equipment, and engineering services turn to the following pages. 681-4

MORE EFFICIENT ELECTRICAL SYSTEMS ▶

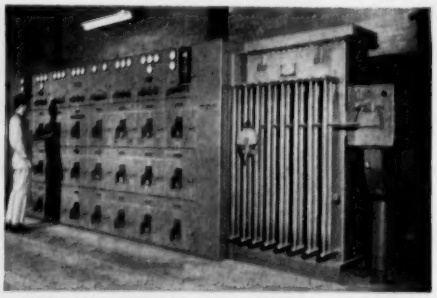
GENERAL ELECTRIC



UTILIZING PROCESS STEAM, G.E.'s complete range of steam turbine-generators provide electric power as a by-product, help maintain plant steam balance.



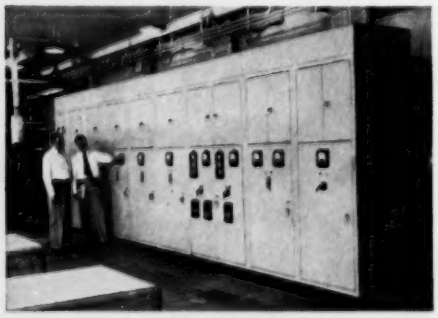
DEPENDABLE G-E gas turbines range from 6700 to 1700 hp. More than 55 units utilize exhaust heat for power generation and mechanical drive applications.



FACTORY ASSEMBLED G-E load center unit substations help cut installation time.

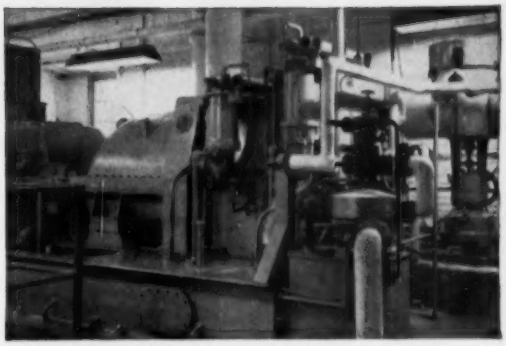
COMPLETE, COMPACT, G-E motor control centers provide centralized control in load areas.

MORE RELIABLE POWER DISTRIBUTION is available with G-E package substations which use co-ordinator transformers, metal-clad switchgear.

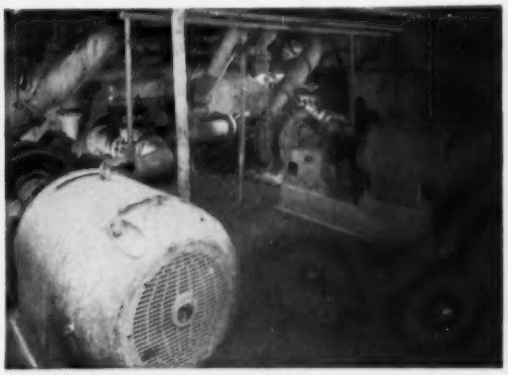


SAVE FLOOR SPACE with compact G-E Limit-amp control units.

DEPENDABLE G-E d-c motor generator sets are designed to operate in continuous service at top efficiency. Minimum of maintenance is a key feature of these sturdy generators built for long life.



ECONOMICAL MAINTENANCE is a key feature in design of G-E mechanical drive turbines.



RUGGED CONSTRUCTION of G-E Tri-Clad* motors make them ideal for all types of drive operations. Polyex insulation in motors 100-3000 hp gives 50% longer motor life. *Reg. Trademark of General Electric Co.

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MODERNIZING, EXPANDING, BUILDING? Whatever your plans, let experienced G-E engineers help plan a more efficient electrical system for you. They will work with you or your engineering contractors to give you correct answers to the following questions.

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5 **G-E MAINTENANCE SERVICE** from 31 G-E Service Shops will repair and uprate your old equipment, help establish productive maintenance of your equipment, furnish emergency service.

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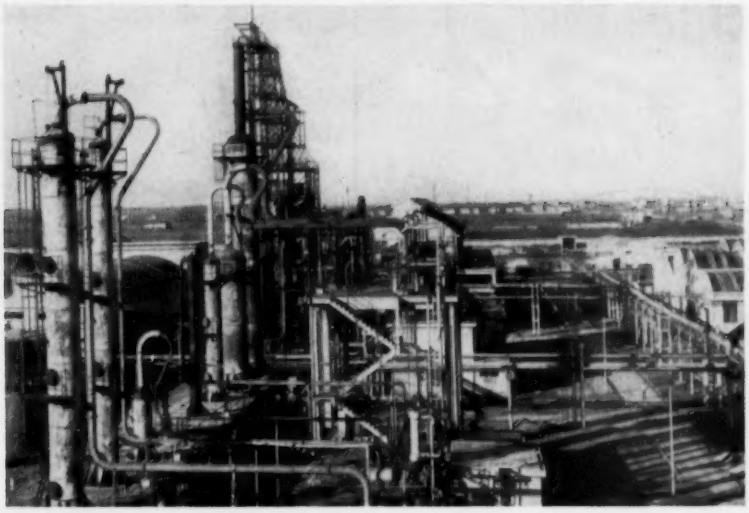

FERRARA UNITS: In Po Valley, Montecatini turns out 50,000 tons/year of nitrogen.

FOREIGN . . . . .

Italian-Japanese Accord: Not content with running its own Italian ammonia-urea capacity at full tilt (*see cut, above*), Montecatini has recently signed contracts to supply technical assistance in Japan to manufacture ammonia and urea. Approved by the Japanese Ministry of International Trade and Industry, the agreement is in force; plant construction should start by summer.

•

Seeking Foreign Investment: A Thai industrial mission left Bangkok for Europe last week on the first leg of a round-the-world tour to seek foreign investment. On the agenda: stops in Germany, Belgium, Italy, France, Great Britain, Japan and the U.S.

High among the industries Thai government officials want to expand: basic chemicals.

•

End of the Line: The firm Deutsche Novocillin GmbH (Munich) has gone bankrupt. Founded in 1949 to sell antibiotics, it expanded rapidly (due chiefly to the lack of German competition at the time), did business in 1951 with 51 countries.

Financial difficulties cropped up lately, however. Main reasons: insufficiency of basic capital, which caused the company to operate on short-term credit; assertions made by U.S. companies to the effect that Novocillin was illegally exporting to East-bloc nations, which caused the U.S. Commerce Dept. to put the firm on its "black list." This made it impossible for the company to purchase in U.S.-influenced areas at favorable prices.

Net result: a major slump in production, recalled credits. It's expected that total debts of the firm (after liquidation) will be DM 1.3 million.

•

Resins/Holland: Stahl Chemische Industrieen N. V. has started construction of a resins and leather finishes plant at Waalwijk, Holland. Parent companies of the recently formed firm: M Levenbach N. V. (Amsterdam) and Stahl Finish Co. (Peabody, Mass.).

•

Finnish-German Cooperation: The Finnish government has guaranteed repayment of DM 13 million borrowed from West Germany by the state-owned Oulu Saltpeter Co.

Oulu Saltpeter now produces 16,000 tons/year of nitrate fertilizers, will use the borrowed capital to purchase machinery to double present production capacity. Result: Finland will be virtually independent of imports.

•

Red Chinese Tactics: A Peking trade mission, now touring Japan, is reported to be propagandizing the line that Japanese-Chinese trade could be considerably increased if Japan would sell to China goods on the UN restriction list. Included: metal products, penicillin, other antibiotics. Immediate Japanese reaction: "controlled interest."

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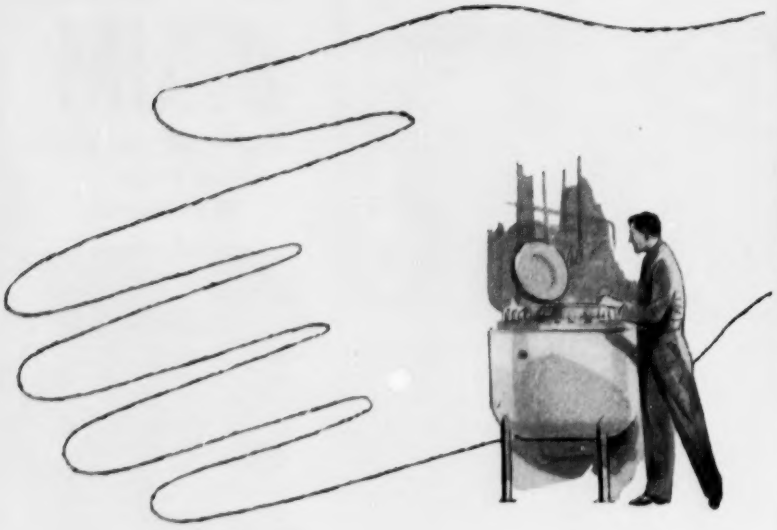

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WIDE WORLD

CIO'S POLLOCK: To counter big firms, he asks government-union duet.

LABOR. . . . . .

$1 Pay Rate Seen: With labor union leaders exerting all their powers of persuasion to get a $1.25 federal minimum wage law, Washington observers are predicting that Congress will compromise by setting the new minimum at $1/hour rather than the 90¢ advocated by the Eisenhower Administration.

Among the arguments advanced by union chiefs: a higher minimum wage would benefit industry by boosting consumers' purchasing power. One of the spokesmen of this school of thought: William Pollock, executive vice-president of the Textile Workers Union (CIO), who declared that a $1.25 minimum wage would increase his industry's labor costs by $203 million/year but would increase textile sales by $225 million. Pollock—who accuses big corporations of preventing their Southern employees from organizing—frankly called for a "partnership" between government and labor unions to carry on improvements he said were made through such a partnership during the 1930s.

•

Strike Control Bill: In Texas, however, the state senate appears to feel that government should be more of a referee than a partner in labor matters. The senate has just passed a bill that would prohibit use of strikes or other coercion in trying to compel an employer to bargain with a labor

Peracetic Acid is amazing users by its remarkable efficacy as a germicide for numerous purposes

Peracetic acid controls mold and bacterial growth . . . is particularly effective against spore-forming organisms such as B. thermacidurans and flat-sour organisms. It is also used successfully against Fusarium rot of bulbs and tubers.

In biological research, peracetic acid is used to produce germ-free conditions in a fraction of the time and at a fraction of the cost required by many other chemicals. It is of interest for sanitizing of equipment and as a germicidal wash for various products, e.g. fruits and vegetables.

Unlike hydrogen peroxide, peracetic acid is unaffected by catalase; its decomposition products are harmless or easily removed; it presents no residue problem. Peracetic acid is low in cost and has a high rate of kill, even in low concentrations. For example: 10 ppm of peracetic acid reduce an initial count of 42,000,000/ml E. coli to zero in 1 minute.

Becco technical consultants will be glad to discuss peracetic acid and its applications. We have available Bulletins 15 and 15A on peracetic acid as a germicide and a narrative report on its use in a leading microbiological laboratory. Peracetic acid is also used for epoxidation and hydroxylation reactions. *Write for Becco's complete list of bulletins on the use of Peroxygen chemicals.*

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a "hands off" policy for bulk materials

How much do you pay for handling bulk materials? Chances are that you pay much more than necessary if you still use expensive manual methods.

In the light of current cost trends—labor rates up 79%, power costs up only 7% in the last 10 years—handling bulk materials by hand does not make good sense. And manual handling always means extra expense in the form of injuries, mistakes, wasted time and inefficiency.

Many plants have solved this problem by adopting a "hands off" policy for bulk materials . . . and have put it into effect with automatic Dracco "Airstream" Conveyors. The modern Dracco method for transporting any dry bulk material with air eliminates manual handling—one pair of hands at a control panel can move tons of materials at high speed through an enclosed dust-free system. Blending, weighing and batching can be done en route. And buying materials in bulk means added savings.

The savings of a "hands off" policy have been proved many times. For example, at a medium-sized Wisconsin plant the Dracco "Airstream" system has cut unloading costs 50%, reduced materials costs $3.50 per ton.

If you think a "hands off" policy makes sense for your plant, we will send a Dracco engineer to discuss the advantages of conveying by air. Or, if you prefer, we will send an informative 24-page brochure on this subject.

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in bulk materials handling and dust control

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dracco converts problems to profits

union that is not actually a representative of the majority of the employees.

•

Industrial Hygienist: A chemical engineer—N. V. Hendricks of Esso Research & Engineering Co.—is the new president of the American Industrial Hygiene Assn., which held its annual meeting last week in Buffalo, N.Y.

•

Dime Pay Rise: It's a 10¢/hour wage increase for AFL machinists and electricians under new one-year contracts with Jefferson Chemical at Port Neches, Tex. Negotiations are continuing on a pact for some 200 CIO production workers.

Getting Warmed Up

The closest approach yet to the chemical industry's ideas on food additive legislation was embodied in a bill introduced in the House of Representatives last week by Rep. A. L. Miller (R., Neb.). Unlike two other bills on the same subject, Miller's measure would allow chemical companies to market a food additive without prior approval by Food & Drug Administration, although it permits government court action if this is done.

Stricter government controls are being demanded, however, in other bills introduced by Rep. James J. Delaney (D., N.Y.) and Rep. Joseph P. O'Hara (R., Minn.). Hearings on all three bills have been set tentatively for June by a subcommittee of the House Interstate Commerce Committee. But it's a question whether a bill can be approved by the committee before Congress goes home this summer.

Miller's bill applies only to intentional additives—not insecticides that wind up in the final product—and packaging that might contaminate the food packaged. Under the proposed procedure, a manufacturer would be required to submit a report to FDA on his tests on the additive's safety.

The Secretary of the Dept. of Health, Education & Welfare (acting upon recommendations of FDA) would have four months in which to review the manufacturer's test data, and come up with approval or disapproval of the additive. If approval was not given, the maker could serve notice on H-E-W that he intended to market the additive anyway. H-E-W might then go to federal courts for an injunction against its use.

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B & I. . . . . .

WIDE WORLD

JUDGE MOLLISON: In customs case, a question of 'manufactured.'

LEGAL. . . . . .

Ruling on By-product: Should a non-refined material that's produced as a by-product in the manufacture of another item be classed as "a manufactured commodity?" That's the question in the ferrosilicon case now pending before Judge Irvin Mollison in U.S. Customs Court; and it's a question that may pop up in future chemical tariff cases. Specifically, Judge Mollison will have to decide whether ferrosilicon should be dutied at 1¢/lb. as a manufactured commodity, as the government contends; or whether it should be admitted duty-free into the U.S. as a metallic mineral in the crude state. Arden MacDonald, production supervisor for Canadian Carborundum Co., Ltd. (Niagara Falls, Ont.) testified that "the prime product we manufacture is aluminum oxide," and that no attempt is made to maintain uniformity in the by-product ferrosilicon. That material—used in certain kinds of steel—is imported at a rate that has yielded $50,000/year in customs duties to the U.S.

Explosion Lawsuits: Litigation relating to explosions at chemical process plants has been proceeding along different tacks in two cities:

• At St. Louis, U.S. District Judge Rubey Hulen has ordered two insurance companies to pay $30,000 apiece to Wilson Keith & Co., the pharmaceutical firm whose plant was

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Specifically designed to inactivate CALCIUM and MAGNESIUM PLUS all traces of IRON. In alkaline processing liquors, calcium and iron sequestering is accomplished SIMULTANEOUSLY.

CHEELOX B-14 is the new, all-purpose chelating agent which is soluble and stable at all temperatures in neutral, acid and alkaline solutions. For economical control of metal ions, regardless of the problem, Cheelox B-14 is the product to use.

To determine the effectiveness and economy of Cheelox B-14, we suggest you compare this new sequestering agent with the product you are now using.

Send today for a sample and technical data on the uses of Cheelox B-14.

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Here's a good example. A high degree of treatment is required at the various restaurant and service areas on the Pennsylvania Turnpike. One Dorr Duo Clarigester and one Dorr Duo Filter are installed at each of four stations to provide the identical degree of treatment that would normally have required five separate units. Installation and operating costs are lowered, space requirements are reduced, and operational headaches are practically eliminated.

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B & I. . . . . .

badly damaged in a blast last June 10. The insurance firms had argued that the taking of incendiary pellets (for use in Army flame throwers) onto the premises increased the danger of an explosion and that the insurers should have been notified. A jury found that the hazard was increased, but that this was not within the control or knowledge of Wilson Keith.

• In Philadelphia, a three-judge tribunal is working on a decision in a taxpayer's lawsuit against the city in a dispute stemming from the blast last October in the Berg Laboratory. A citizen is asking the court to prevent the city's paying $10,000 to survivors of each of the 10 firemen killed in the explosion, asserting that these awards are not a proper use of public funds. The city administration contends that the awards are for heroic service, to protect firemen's families, and to boost morale of firemen.

KEY CHANGES. . .

Howard S. Bunn, to executive vice-president, Union Carbide and Carbon Corp. (New York).

Leslie A. Sauers, to sales manager, Grove Laboratories, Inc. (St. Louis).

Darrell Althausen, to vice-president and technical director, Ungerer & Co., Inc., (New York).

W. Chester Cobb, to president, Arnold, Hoffman & Co., Inc. (Providence, R. I.).

Joseph G. Morris, to director, Interchemical Corp. (New York).

E. A. Bence, Victor Wiebe, and **R. T. Wilson,** to vice-presidents, Standard Oil Co. of British Columbia (Vancouver, B. C.).

Robert H. Darling, to chief engineer, Jefferson Chemical Co., Inc. (Port Neches, Tex.).

Jack A. Horner, to vice-president, licensing division, Shell Development Co. (Emeryville, Calif.).

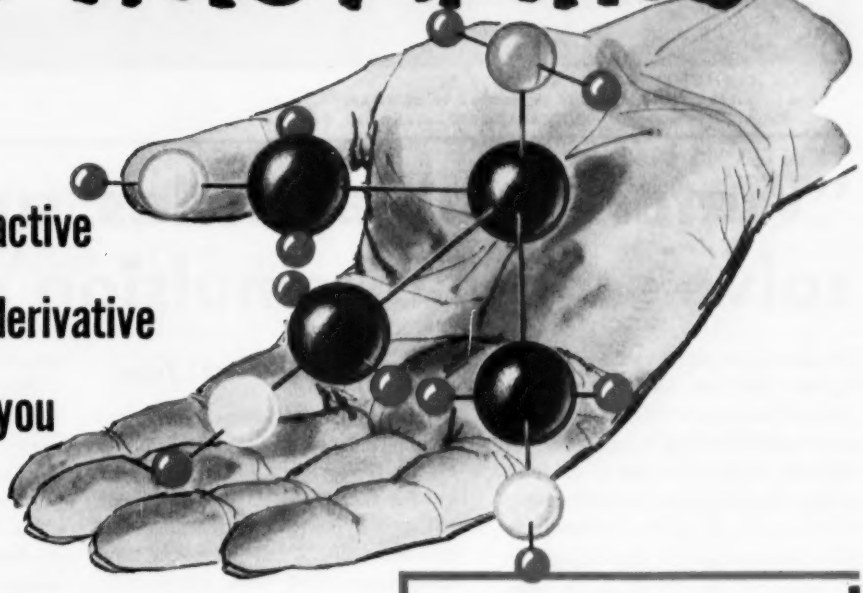
Donald Ellis, and **Frank M. Smith Jr.,** to directors, West End Chemical Co. (Oakland, Calif.).

KUDOS. . . . . .

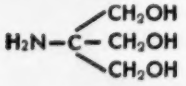
To **William A. Peterson,** assistant research and development director, Colgate-Palmolive Co. (Jersey City, N. J.), 1955 presidency, American Oil Chemists' Society.

meet "TRIS AMINO"

See what this highly reactive nitroparaffin derivative might do for you



"Tris Amino" is short for Tris(hydroxymethyl)aminomethane. This chemical is unique. It is the only tri-hydroxy molecule commercially available having a primary amine group.



Tris Amino is a raw material undergoing a very wide variety of chemical reactions. The reactivity of Tris Amino makes it of unusual interest in chemical synthesis, since it contains a primary amine group *and* three primary reactive hydroxyl groups. Manufacturers of resins, synthetic drying oils, and surface active agents cannot afford to overlook the potential usefulness of Tris Amino as a raw material.

Tris Amino reacts with higher fatty acids to form soaps with unusually strong emulsifying power. Relative high boiling point and low combining weight recommend the use of Tris Amino in preparation of cosmetic creams, textile specialties, cleaning compounds and many other emulsions.

CSC's great new Nitroparaffins plant at Sterlington, La., on stream August, 1955, will assure certain, constant supplies of Tris Amino.

PROPERTIES

Molecular Weight	121.14
Boiling Point, °C	219 to 220 (10mm)
Melting Point, °C	171-172
pH of 0.1M Aqueous Solution at 20°C	10.4
Solubility in Water at 20°C, g/100 ml	80

Other Aminohydroxy Compounds

AB (2-Amino-1-butanol)
AMP (2-Amino-2-methyl-1-propanol)
AMPD (2-Amino-2-methyl-1, 3-propanediol)
AEPD (2-Amino-2-ethyl-1, 3-propanediol)

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Dispersing an oil or wax into water is by far the most common type of emulsification problem. This calls for an emulsifier which is soluble or dispersible in and attracted to water . . . and at the same time has the capacity of absorbing the oily constituent.

For applications of this class . . . in cosmetic creams, cleaning compounds, polishes and numerous other products . . . Atlas manufactures an extensive line of water-soluble (hydrophilic) emulsifiers. All of these are non-ionic, and consequently offer the qualities of stability and compatibility characteristic of such materials.

How Water Solubility is "built"

Atlas hydrophilic emulsifiers are derived from sorbitol or other polyols, fatty acids, fatty alcohols, and alkylene oxide. As in all emulsifiers, part of the molecule is attracted to water, and part to oil. In hydrophilic types, the "water-loving" side predominates. Their HLB value (hydrophile-lipophile balance) on the Atlas scale is high.

The water-loving character of these emulsifiers is supplied by free hydroxl and oxyethylene groups in the molecule. By chemically building a series of products with molecules having different numbers of such groups, Atlas produces a family of emulsifiers with varying degrees of water solubility. From this line, it is possible to select the exact degree of water-attraction necessary for a particular emulsion application.

Choice of Chemical Type

The table below shows the principal chemical types of Atlas hydrophilic emulsifiers. At any given HLB value, there are several different chemical types from which the emulsion technologist can choose the type most compatible with his specific emulsion ingredients. These are used either by themselves or in blends with other Atlas emulsifiers to produce an almost endless range of emulsifying action. For complete data and suggestions for use, write for a copy of the booklet, "A Guide to Formulation of Industrial Emulsions with Atlas Surfactants."

Water-soluble emulsifiers are made in varying degrees of attraction for water by adding hydrophilic alkylene oxide chains to the molecule. For example, the oil-soluble sorbitan fatty acid esters (typified by the Span products of Atlas) are made water-soluble by reacting them with ethylene oxide, producing such materials as the Tween emulsifier series.

TYPICAL ATLAS HYDROPHILIC EMULSIFIERS

		HLB Value	Color and form @ 25C
TWEEN 20	Polyoxyethylene sorbitan monolaurate	16.7	lemon-orange oily liquid
TWEEN 21	Polyoxyethylene sorbitan monolaurate	13.3	lemon-orange oily liquid
TWEEN 40	Polyoxyethylene sorbitan monopalmitate	15.6	lemon-orange oily liquid
TWEEN 60	Polyoxyethylene sorbitan monostearate	14.9	orange oily semi-liquid
TWEEN 61	Polyoxyethylene sorbitan monostearate	9.6	tan waxy solid
TWEEN 65	Polyoxyethylene sorbitan tristearate	10.5	tan waxy solid
TWEEN 80	Polyoxyethylene sorbitan monooleate	15.0	lemon oily liquid
TWEEN 81	Polyoxyethylene sorbitan monooleate	10.0	lemon oily liquid
TWEEN 85	Polyoxyethylene sorbitan trioleate	11.0	lemon oily liquid
MYRJ 45	Polyoxyethylene stearate	11.1	cream waxy semi-solid
MYRJ 49	Polyoxyethylene stearate	15.0	light tan waxy solid
MYRJ 51	Polyoxyethylene stearate	16.0	light tan waxy solid
MYRJ 52	Polyoxyethylene stearate	16.9	light tan waxy solid
MYRJ 53	Polyoxyethylene stearate	17.9	light tan waxy solid
MYRJ 59	Polyoxyethylene stearate	18.8	off white waxy solid
BRIJ 30	Polyoxyethylene lauryl ether	9.5	white oily liquid
BRIJ 35	Polyoxyethylene lauryl ether	16.9	white waxy solid

Calculating Values of Surfactants on the Atlas HLB Scale

Atlas recently released information which enables emulsion technologists to classify a majority of all non-ionic surface active agents mathematically, by assigning numerical values which give an index of the usefulness of each surface active agent for various purposes. The numerical method of classification, known as the HLB (Hydrophile-Lipophile Balance) System, was developed by Atlas and applied to the Atlas line of surfactants some years ago.

The HLB value of a non-ionic surfactant can be determined experimentally by a long and laborious procedure. Now, through correlation of many such values, we have worked out formulas for calculating these values for many types of materials, avoiding tedious experimental work. These mathematical formulas are based on either analytical or composition data for the material.

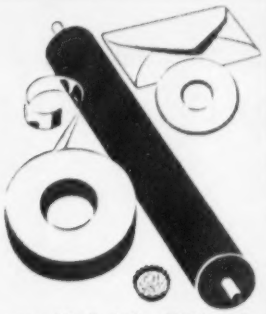
For example, the approximate HLB value of most polyol fatty acid esters can be calculated with the formula—

$$HLB = 20\left(1-\frac{S}{A}\right)$$

"S" is the saponification number of the ester, and "A" is the acid number of the fatty acid. For glyceryl monostearate, "S" = 161 and "A" = 198; therefore HLB = 3.8. For Tween 20 (see opposite page), "S" = 45.5 and "A" = 276; therefore HLB = 16.7.

Other formulas have been developed for tall oil and rosin esters, beeswax esters, lanolin esters, and ethylene oxide derivatives of fatty acids and fatty alcohols. These formulas, along with HLB values for over 100 surfactants made by various manufacturers, are given in a booklet "Calculation of HLB Values of Non-Ionic Surfactants," available from Atlas.

New Atlas Plasticizer for Evaluation in Glue Compositions



A product recently developed from sorbitol, Atlas G-2401, is offered to manufacturers and users of glue compositions for evaluation as a plasticizer in printers' rollers, cork binders, dextrin adhesives, gaskets, etc. G-2401 has already been successfully adapted by leading printers' roller manufacturers for their products, for which plasticizer requirements are most critical.

G-2401 is a non-crystallizing, 85% aqueous solution of technical hydroxy-propyl sorbitol. On an equal solids basis, its price offers substantial savings over other non-crystallizing polyols used for such applications.

The viscosity of this material is 3500 cp. at 25°C. . . . approximately ten times that of 95% glycerine solution. G-2401 thus gives equivalent glue viscosities at higher water contents. The material also imparts increased toughness and tensile strength, and the less tacky film characteristic of sorbitol softened glue formulas.

A Technical Bulletin on G-2401 is available from Atlas on request.

New publication describes chemical oil-well stimulant

An 8-page booklet just published by Atlas gives full technical information on ATPET® 931—a chemical used for economical treatment of oil wells that are subject to water damage. It tells how this surface active material lowers the interfacial tension between oil and water practically to zero, and allows normal flow of oil to resume after water infiltration has blocked production.

Listed in the publication are the various classes of oil field applications where the Atpet 931 treatment has been successfully used, as well as the types of jobs on which experience indicates it can be expected to work. Limitations of the method and instructions for treatment are included. Complete physical characteristics and chemical data are given. Ask for CD-88.

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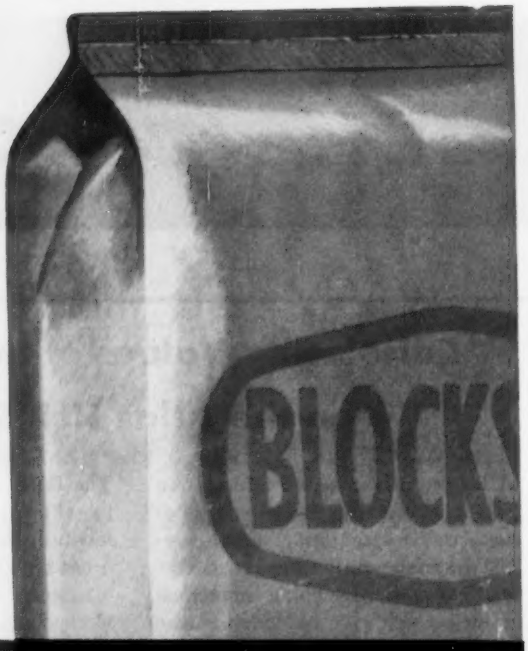
(SODIUM TETRAPHOSPHATE)

Trisodium Phosphate
CRYSTALLINE
MONOHYDRATE



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Disodium Phosphate
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Monosodium Phosphate
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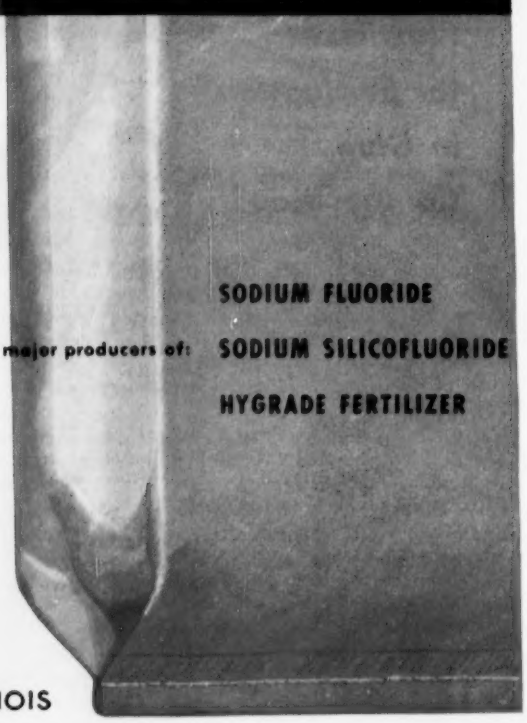

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Promotion on the Pike

Some do, some don't; some will, some won't—that's pretty much the pattern in outdoor advertising of chemical products destined for farm use. Those who do are sowing their ideas in the open country—to harvest a healthy part of the profit in farm chemicals. No. 1 target is the farmer. Because his reading may be plowed under during the busy seasons, billboards close the gap by catching him coming and going—from farm to town.

The pitch, more often than not, is toward a specific agricultural problem.

Cotton pests, for example, are victims of choice for Shell Chemical's Aldrin and Dieldrin, and for Hercules Powder's Toxaphene; all three pesticides will, of course, destroy other insects as well. The voracious tobacco horn worm is singled out by Rohm & Haas for special treatment with Rhothane; for potato blight, Dithane is recommended. Olin Mathieson departs somewhat from the usual pattern by selling DDT and DHC as general insecticides, but still concentrates billboard advertising in the South.

The tendency to localize outdoor advertising extends to fertilizers, too. Olin Mathieson promotes Ammo-Phos in its Southern campaign, and Shell Chemical concentrates on Shell NH_3 and Ammonium Sulfate in the Far West.

More highly specialized products, such as Pfizer's Terramycin and Vigofac (growth factors for poultry feeds), are promoted in well-defined areas—for example, among broiler growers.

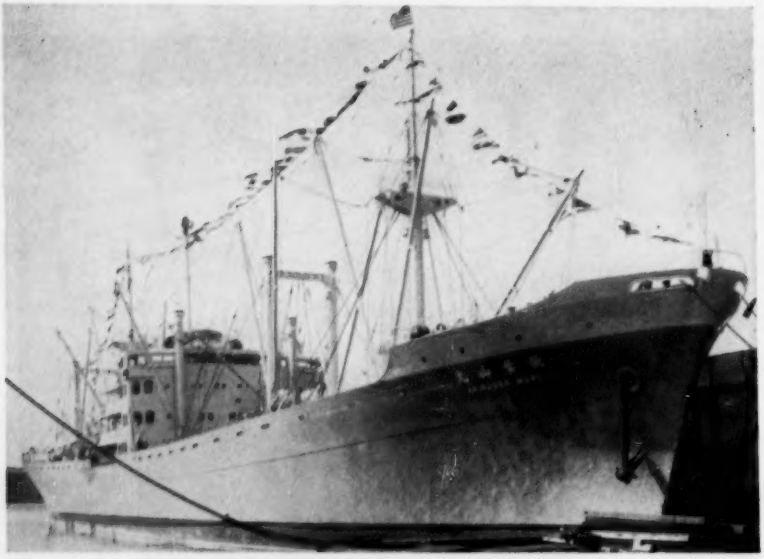
Many companies regard billboards as a convenient secondary form of advertising; it is an effective medium to reinforce and round out other farmer contacts, i.e., farm publications, newspapers, radio, TV.

Some Don't . . . : Yet, one ad man's clover may be another's thistle. Enthusiasm for outdoor advertising is not shared by all manufacturers of agricultural chemicals. Their reasoning:

- Costs are too high for some budgets.
- The expense of "blanketing" an area may be prohibitive if highway patterns are such that they prevent strategic placement of a few signs for high reader contact.
- The product, by nature, may be unsuitable for billboard advertising if, as in many cases, it loses manufacturer identity long before it reaches the consumer.
- Effectiveness of outdoor advertising is difficult to evaluate.
- Finally, the sometimes adverse public reaction to billboards* worries some.

The upshot: each product and its territorial target poses an individual problem.

* The term "billboard" is shunned in the trade because of the many "antibillboard" campaigns that have plagued the industry. Favored instead: "outdoor poster displays."



MITSUI: Its shipping rates are blamed for boron mix-up.

Frisco Freight Fracas

Storm warnings are going up in the chemical industry as attention is focused on the shipping tangle to be examined in San Francisco by the Federal Maritime Board on May 9.

The hassle involves Pacific Coast European Conference, the Japanese-owned Mitsui Steamship Co. Ltd., and American Potash & Chemical Corp., with its subsidiary, Three Elephants Borax Corp.

The controversy centers on the interpretation of a so-called "Shippers Rate Agreement" signed by member firms of the carrier organization (Pacific Coast European Conference) and the boron shippers (American Potash and Three Elephants). Because an important precedent may be established by the FMB decision, observers say it is possible that other chemical firms—now merely interested spectators—may seek to follow the example set by American Potash if it wins the case.

The "Shippers Rate Agreement" specifies that the boron producers must make Europe-bound shipments only in Conference vessels; in return, the chemical firms reportedly enjoy lower rates than are offered to shippers not bound by similar contracts. When the chemical companies have retained title on the boron until it has reached the foreign port, Conference vessels apparently have been used in compliance with contract requirements.

In some cases, however, the boron has been sold to an agent in this country; he, in turn, has arranged shipment in non-Conference bottoms—notably in Mitsui ships.

The latter situation has created the present controversy. The Conference holds American Potash and Three Elephants responsible for the Conference's loss of cargo, and argues that it is incumbent on the two firms to insist that Conference ships are used. The boron producers must rescind the sale—the Conference adds—if the agent will not comply with the request to use Conference bottoms.

Because the agents have refused to comply with the request, and because the chemical firms nevertheless have sold boron to them, the Conference contends that contract terms have been violated; consequently, they have assessed "liquidated damages" against the boron producers. American Potash and Three Elephants have refused to pay the imposed penalties, and the Conference has cancelled the contract. (The contract rates will be in force, however, for the duration of the 60-day negotiation period established April 1.)

A complaint was filed with the Federal Maritime Board by American Potash and Three Elephants, which allege that they have continued to live up to the terms of the contract, while the Conference has repeatedly stated that the lower contract rates will no longer be applicable to them. They complain, further, that the Conference has continued since Oct. 15 to charge lower contract rates to other boron producers, and thereby has caused injury to the plaintiffs.

To support their case, American Potash and Three Elephants insist that they neither can dictate to the agent how he must ship the boron to Europe, nor can they legally refuse to sell the boron if the agent does not agree to use Conference vessels.

The Mitsui Steamship Co.—as the

SHIPPER'S HASSLE: FMB's Examiner Jordan (left) faces a knotty problem; American Potash President Colefax argues for free-trade policy.

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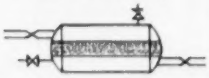

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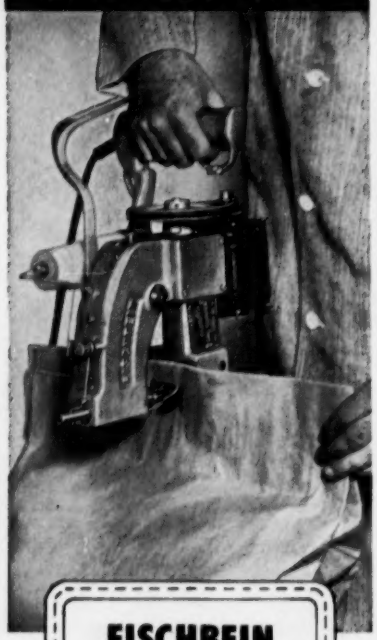

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Conference sees it—is the cause of the trouble because the line has ". . . initiated a program of competitive cut-rate practices, which the lines in the Conference cannot meet because of their mutual commitments under the terms of the Conference agreement."

The Conference adds that an invitation to join its organization has been extended to Mitsui, but the line has declined, despite its alleged membership in 19 other conferences.

Far from assuming a passive role in the controversy, Mitsui has filed suit against certain members of the Conference, charging that they have offered illegal, arbitrarily lower rates to contract shippers. This, Mitsui says, has hurt its business.

The Federal Maritime Board has consolidated the Mitsui suit with the American Potash and Three Elephants complaint for reasons of "convenience," and plans to examine them concurrently.

FMB examiner A. L. Jordan will hear the case before the Federal Maritime Board; the recommended decision will be issued by him.

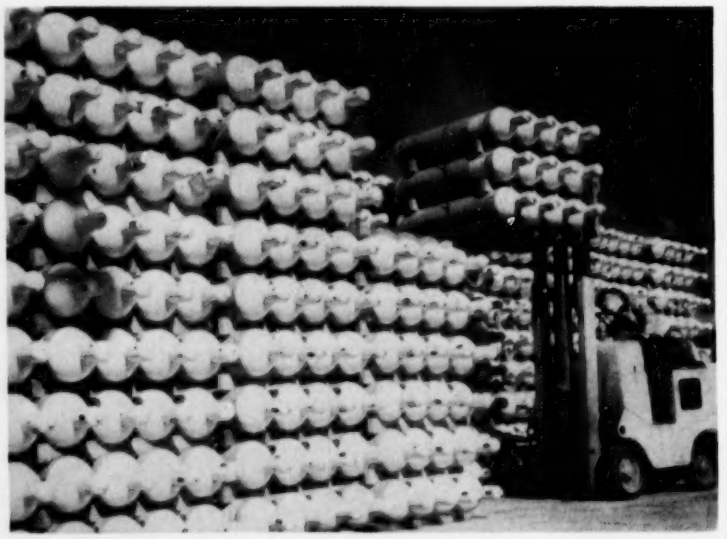
This is how the picture looks today:

The Conference no doubt sees American Potash's position as an unwholesome precedent that could precipitate parallel action by other firms.

American Potash, on the other hand, sees the Conference's insistence on shipping all boron to Europe in Conference bottoms as an infringement on American Potash's prerogatives.

Mitsui's success or failure, in its suit against the Conference, will undoubtedly guide the policies of other shipping lines.

Contracts similar to the "Shippers Rate Agreement" reportedly are in effect with many firms other than the boron producers. Consequently, the tactics of American Potash, led by President Peter Colefax, will attract the attention of top management throughout the chemical industry.



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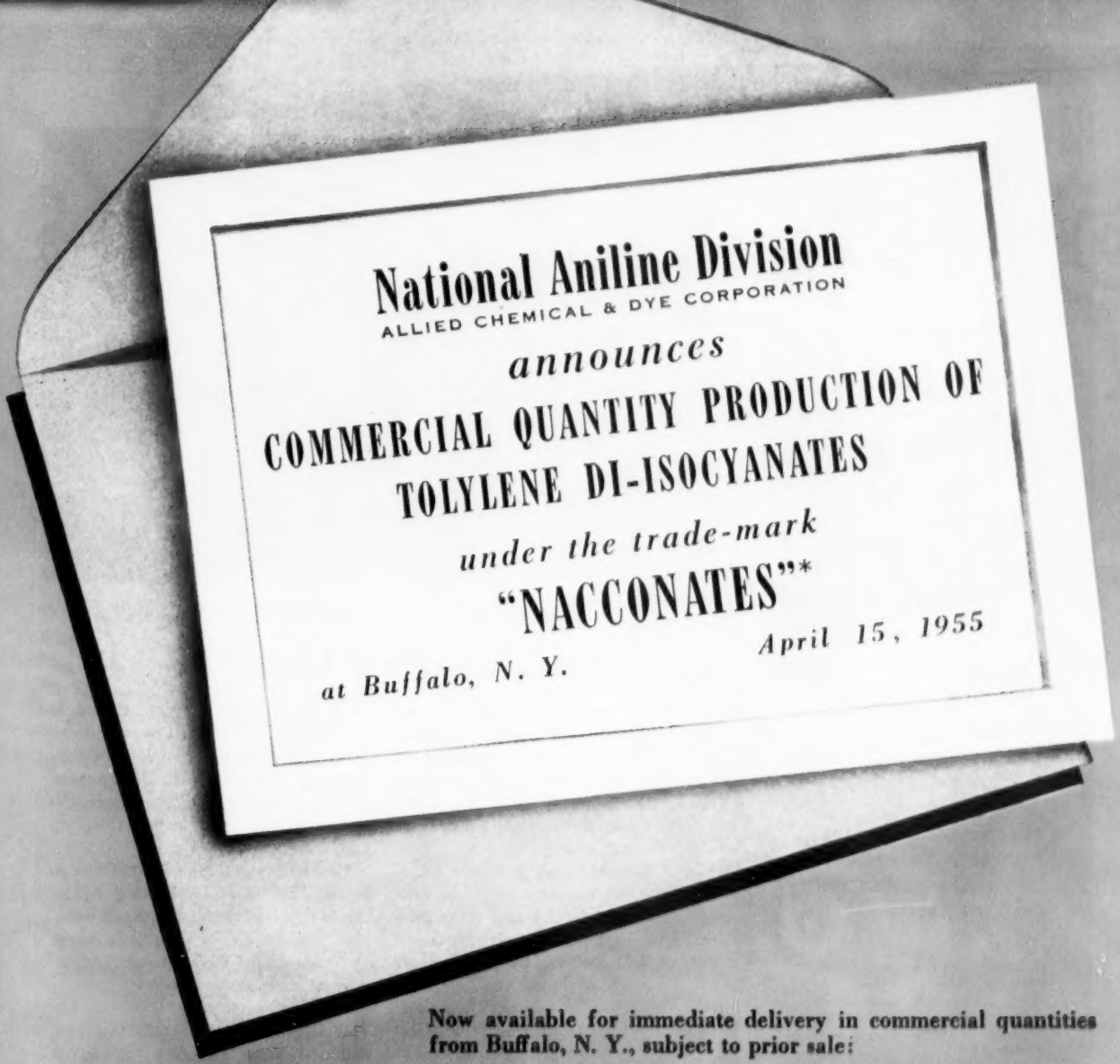
UNIT LOADS—a new technique providing faster handling, less damage, and simplified tier-stacking of cylinders—have been developed by the General Chemical Division for its "Genetron" refrigerants.

The cylinders are stacked horizontally in tiers, separated by pairs of notched 2x4-in. wood spacers, and banded together with standard steel strapping. Layers of protective paper are used between the steel bands and the cylinders.

From 8 to 24 cylinders can be packaged into each "unit load," depending on the size of the tanks.



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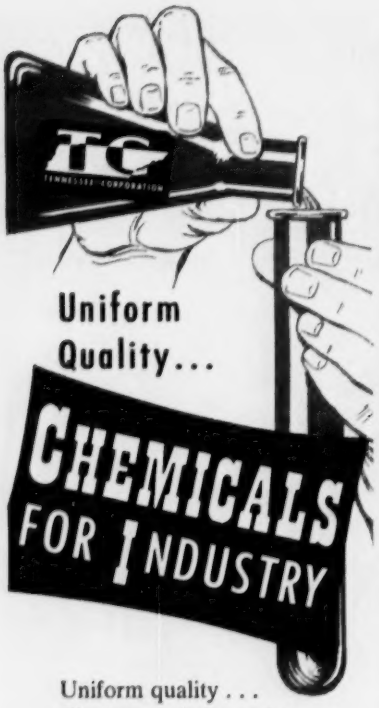

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REGISTRANTS: Thronging the packaging exposition, they catch tempo of . . .

New Materials, New Ideas

Chemical executives who roamed about the 24th National Packaging Exposition and attended sessions of the National Packaging Conference, held simultaneously in Chicago recently, came away with a fistful of ideas to mull over.

In the Windy City's immense International Amphitheater were displays by better than 30 chemical companies on new applications and materials. Polyethylene sheeting for lining chemical containers, foam plastic for cushioning fragile ampules, huge collapsible rubber containers (*CW, Oct. 30, '54, p. 54*) and 1,000-lb. cardboard boxes for shipping plastic pellets were all part of the show, pointed up application possibilities.

Sharing attention: news of recent trends in warehouse cost-cutting. At the conference sessions, scheduled warehouse operations were discussed by soap, drug, electrical parts, and consultant authorities. Time study on order-filling, followed up with precision scheduling to eliminate "stops and starts" and poor integration of men, machines, and stock supply, has produced better service and substantial savings, the experts claimed.

Foam Packs: Vinyl chloride, polyurethane, and phenolic foams and expanded polystyrene were proposed for packaging applications by several chemical industry speakers. Lightweight, resistant to flame, water-rot and insects, these materials can often be molded to the shape of the packaged object and colored to provide an attractive appearance. Chemical applications of plastic cushioners now include pharmaceuticals, cosmetics and toiletries, may soon extend to glass-bottled chemicals.

Other thought-stimuli at Chicago encompassed package testing equipment, new packaging needs of druggists, and the use of foils, films, paper and paperboard for consumer and industrial packaging.

•

The following publications may be obtained from the U.S. Dept. of Commerce's Field Offices:

- Packaging information sources—annotated bibliography embraces all phases of the container field. 15¢.
- Simplified Practice Recommendations—listings of specific recommendations for diminishing unneeded variety of products. 15¢.

•

Expanding sales coverage:

- Shell Chemical Corp.'s Agricultural Chemicals Division is moving eastward: by May 15 offices of the division now at Denver will be in New York City.
- Geigy Chemical Corp. (New York) will open a distribution center in Chattanooga, Tenn., complete with service labs, offices, and warehouse. The center will service dyestuff and chemical customers within a 300-mile radius.

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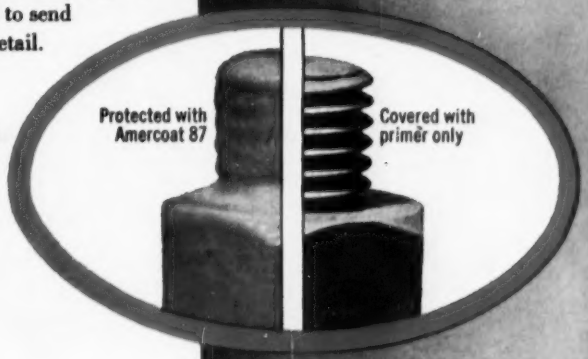
You can save up to 50% of your labor costs with **Amercoat's new vinyl mastic No. 87.** We will be pleased to send you a bulletin describing this new coating in detail.

Notice that the sharp bolt threads, welds and sharp corners are completely protected with one coat of Amercoat No. 87—10 mils thick!



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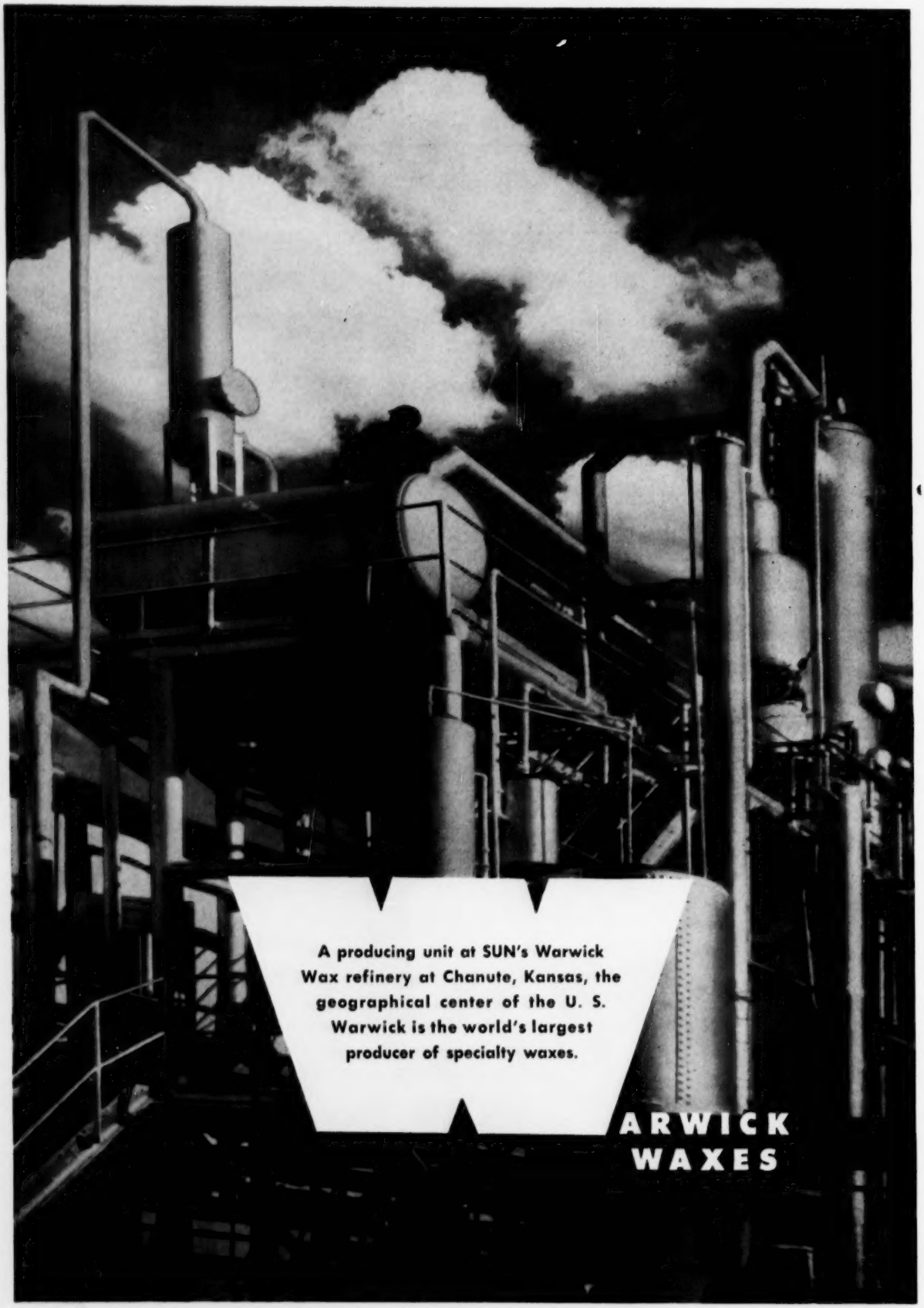
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FISHER'S FLANDERS: He's helping amateur reagent makers to be . . .

Done with "Do It Yourself"

No one makes his own reagents, any more. No one, that is, except the researcher who uses a spectrograph. He must make his own, because chemicals of the required purity for spectrography are, commercially, almost unknown. And very much the same holds true for many other areas of instrumentation. This week, however, it appeared as if the days of "do it yourself" were numbered for the remaining amateur reagent makers.

Reason: after several hesitant approaches, the reagent-chemicals industry is beginning to attack in earnest the problem of producing instrumentation chemicals.

Fisher Scientific, for instance, is making spectrographic reagents the first order of business for researchers of the company's brand-new Fair Lawn, N.J., chemicals plant. Lithium carbonate—widely utilized as a background (means of improving the spectra of other materials)—is the initial target of this effort. But sodium chloride, postassium chloride and several other alkali-metal salts are also slated for early attention.

The problem, in each case, is purity. Because of the sensitivity of spectrographic analytical methods, trace quantities of impurities are too easily detected, complicate the task of interpreting results. To insure the purity of their reagents, researchers must go through laborious recrystallizations of reagents that conform to already high analytical standards. Time consumed by these purifications can be considerable; and, because of limitations of ordinary purification techniques, final products frequently contain relatively large (for spectrographic purposes) amounts of some contaminants.

This problem can be licked, believes silver-haired Clifford Flanders (chief of research at Fair Lawn), by a more fundamental approach. In order to limit impurities to the required parts-per-million, he avers, rigid control must be exercised right down to the starting materials used in synthesizing the compounds in question.

In the case of lithium carbonate, for example, both the lithium hydroxide and the carbon dioxide used in synthesis will be painstakingly refined. Apparatus, utensils, even the water required for the preparation, will get similar treatment. Preventing the buildup of impurities, Flanders holds, is far more desirable than eliminating them from the product.

His sentiments are seconded by Fisher's Kenneth Starr, who will spearhead the laboratory work called for by the new program.

Watchful Waiting: Despite outward appearances, reagent makers did not suddenly come alive to the opportunities in spectrographically pure materials. Flanders reveals that his company has received sporadic requests for one or another extremely pure compound for spectrographic use. But only recently, he points out, has this demand reached commercially interesting proportions. This is due largely to the now-widespread application of spectrography in research; and the introduction of the method into large-scale quality control (by the Ford Motor Co., among others).

Some spectrographically pure reagents are now available. But they're few, far between and usually incidental to their producers' operations. United Carbon Co. and National Carbon Division (Union Carbide and Carbon), for instance, offer an ultrapure graphite. Similarly, Aluminum Corp. of America produces an extremely pure aluminum for spectrography.

An exception is Spex Industries (Queens, N.Y.), which offers zinc oxide and graphite exclusively for spectrographic use. These substances function as bases (or carriers) for standards used in spectrographic analysis. A broad-gauge standard, containing 43 different elements in a graphite base, is one of Spex' products. The company expects to be out with a lithium carbonate spectrographic base in the near future.

In the reagent industry proper, Mallinckrodt is one of the few firms that have appeared with spectrographic grade chemicals. An English firm—Johnson, Mathey—must also be included in the spectrographic-chemical picture. Jarrell-Ash (Newtonville, Mass.) distributes the latter's products.

Liquid Phase: Spectrographic solids is not the only segment of reagent research being buoyed by the rising tide of instrumentation. Spectral solvents, used in infrared and ultraviolet spectrometry, also are targets of increasing study.

Here, it's a matter of obtaining solvents that permit better than 90%

transmission of the two types of radiation. Since absorption of IR and UV radiation is largely a function of the impurities in the solvent, it comes down, once again, to the problem of purification.

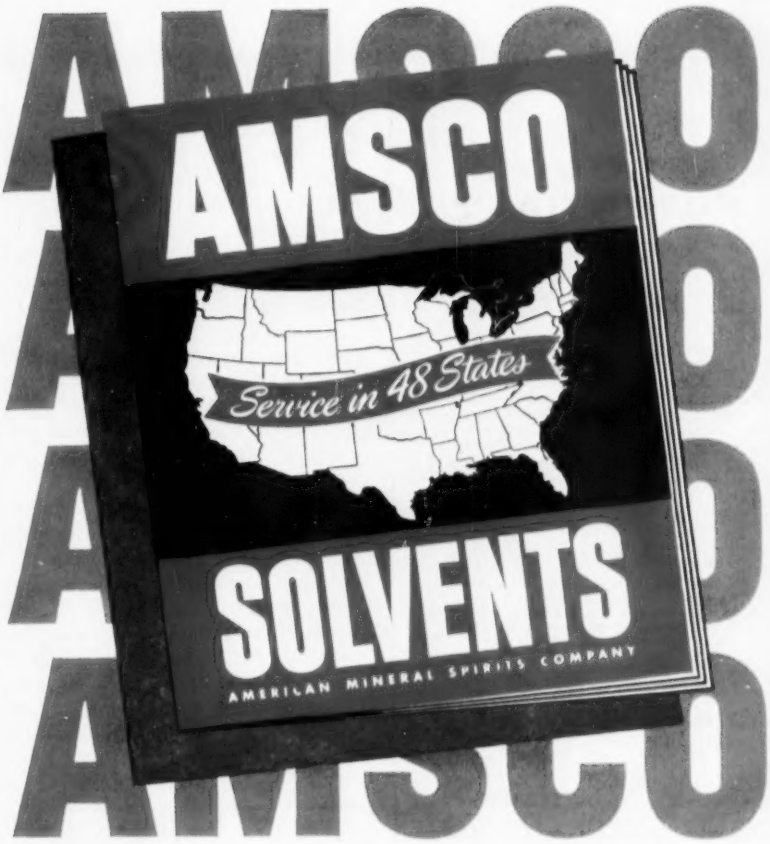
Some spectral solvents of satisfactory purity are available on a commercial basis. Among these: chloroform, acetone, carbon tetrachloride, iso-octane and cyclohexane. But there is real need in research for several others—e.g., methanol, isopropanol, ether, n-butanol, petroleum ether.

According to Flanders, Fisher is also tackling these in its new Fair Lawn laboratories. Most of the holdouts, he ventures, will yield to rigorous application of familiar distillation and ion-exchange techniques. Companies already represented in spectral solvents include: Merck, Eastman Kodak, J. T. Baker, Phillips Petroleum and Hopkin & Williams Ltd. (Essex, England).

As the instrumentation trend goes forward, other reagent areas doubtless will receive the purity-seekers' attention. By superseding the old wet and gravimetric methods of analysis, instruments do not—as many believe—eliminate the need for analytical chemicals. Their principal effect is to raise the standards of acceptability for compounds that are normally near-immaculate.

Who's Using Spectrography?

Just about everyone probing the properties of pure materials. And that encompasses an increasingly large proportion of industrial researchers. Key to the spectrograph's growing popularity is its ability to detect minute quantities of substances by analyzing light emitted by their hot vapors. The new-found career of silicon in transistors *(CW, Jan. 30, '54, P. 43)* is perhaps the most striking illustration of the spectrograph's practical value. The semiconductance of pure silicon never was fully appreciated until spectrographic analysis made it clear that a really pure silicon was virtually unknown; what passed for pure silicon (on the basis of chemical tests) proved to be relatively impure under spectrographic scrutiny. Today, a legion of seemingly pure materials are undergoing spectrographic screening in an attempt to uncover potentially valuable hidden traits.



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Fruit Study

Peach growers have a potential aid in N-1-naphthyl phthalamic acid, a new plant growth regulator under study at Cornell University (Ithaca, N.Y.). In orchard tests, Cornell pomologists L. J. Edgerton and M. B. Hoffman found the chemical to be effective in thinning the fruit yield of heavily burdened peach trees.

Applied at full bloom in spray concentrations ranging from 150-300 ppm., NPA gave noticeable results—i.e., dead flowers—within 10 days after application. Fruits that survived this treatment reportedly developed to "excellent size."

Chemical agents, notably dinitro compounds, have been used with some success in peach thinning. But the available compounds must be applied precisely when the tree is in full bloom. No such rigid condition obtains with NPA, which has caused thinning when applied as late as five weeks after bloom, although optimum time of application appears to be within several days after bloom.

Other compounds under scrutiny in this connection by the Cornell pair: α-naphthalene acetic acid; 3-chloro-isopropyl-N-phenyl carbamate.

•

Plastic News: A new polyethylene was unveiled this week by Koppers Co. (Pittsburgh). A high-molecular-weight material of the type pioneered by Germany's Professor Karl Ziegler (*CW, April 2, p. 36*), it reportedly has greater tensile strength than other available polyethylenes. Other features: high heat resistance, ability to withstand shock—even at temperatures down to -70 F.

Koppers expects the new material to find application in housewares, toys, aircraft and automotive accessories.

•

Folic Find: American Cyanamid research, aimed at improving the stability of folic acid in certain aqueous pharmaceutical products, points to three suitable antioxidants: nordihydroguaiaretic acid; butylated hydroxyanisole; and ethyl hydrocaffeate.

Infrared Insight

FLAWS in the silicon ingot held by General Electric physicist William Dash pose no mystery to the infrared snooperscope trained on it. Rays pass through the ingot, are changed to visible, structure-revealing light by the instrument. The device (used by snipers in World War II) has been newly turned to peaceful pursuits by GE's semiconductor researchers probing silicon imperfections.

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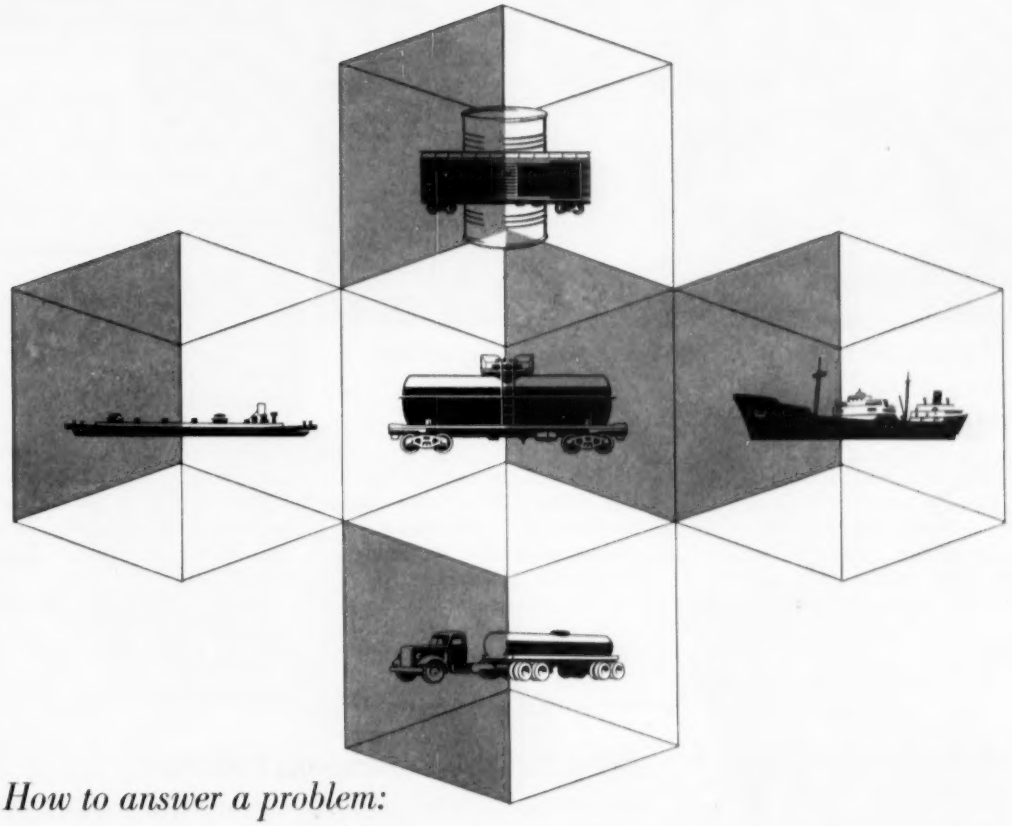

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ACETATE PROCESSOR: Chemical research is making her busier.

Spurs for Acetate

The fruit of intensified research (*see box*) by cellulose acetate makers is a welter of developments aimed at increasing the fiber's ability to compete.

This week, the unveiling of a new family of dyestuffs stirred hope that some old failings of dyed acetate (notably poor color fastness) may soon be overcome. Called Eastofix dyes, they're a development of Eastman Chemical Products.

Significance: The dyes introduce a new technique in acetate dyeing. Unlike dispersed colors, which are applied entirely in the dyebath, the new agents call for a subsequent insolubilizing treatment. This is the secret of their high degree of fastness to washing, light, etc. But the aftertreatment (with a metal-containing fixing agent) boosts dyeing costs, introduces an additional processing step.

Structures, of course, are secret. But the new materials are said to be a sharp chemical departure from previous acetate coloring agents.

Not so is General Dyestuff's new gas-resistant Celliton F. Blue LAFR, which is an innovation on the familiar anthraquinone dispersed acetate dyes. Another result of this approach is General Dyestuff's new Celliton F. Yellow GGLL, which reportedly possesses good light-fastness. This is the traditional approach that has yielded the bulk of currently available acetate colors.

Eastman's acetate-dye development work is closely tied in with the drive to expand acetate uses; acetate yarn is made by parent Eastman Kodak Co.

Du Pont, another producer of both acetate yarn and acetate dyes, has had its hands full in recent years developing colors for its other synthetics.

The other acetate makers, American Viscose Corp. and Celanese Corp. of America, are stressing new uses and improvements in the fiber itself.

Why They're Putting on Pressure

Since the advent of the precocious acrylics and polyesters, cellulose acetate has lost ground in the textile marketplace. Last year, for example, noncellulosic fiber production was up 14½% over 1953, while acetate yarn and staple slumped 13½% and 26%, respectively. Thanks largely to research, it looks as if acetate will do better this year.

Improvements in natural and dyed acetate are recapturing the interest of textile makers who have always liked the fiber's low cost,* draping qualities, desirable hand.

Biggest boost is solution-dyeing (*CW, Feb. 13, '54, p. 42*), which yields a highly color-fast fiber. It's estimated that about a quarter of all acetate filament is now sold in solution-dyed form.

Solution-dyed staple (short-length fibers) hasn't had similar success, largely because of the difficulty in controlling contamination of textile equipment during processing. But this is coming in for study.

Also under investigation are new blends, dyes, antigas-fading chemicals and fundamental fiber modifications. Noteworthy among the last-mentioned is Celanese Corp.'s triacetate (*CW, Dec. 11, '54, p. 78*), said to be on the brink of commercial production. Since this fiber was revealed last year, over 1 million lbs. has been consumed in evaluation work by more than 80 textile mills.

While it's still too soon to gauge the long-term effect of these improvements, there's no question that they've helped reverse acetate's decline. Encouraged by the success of their researchers, acetate producers hope that continuing study will allow the fiber to recapture its former status in the textile trade.

*Comparative prices/lb. of 150-denier filament yarns: acetate 78¢, viscose 83¢, Dacron $2.25, Orlon $2.30. Nylon (140-denier) is about $1.85/lb.

RESEARCH . . . . .

American Viscose is banking heavily on its new acetate-nylon blend (e.g., for bedsheets that require no ironing) to boost acetate sales. Celanese expects its triacetate (*see box*) to find volume outlets, especially in blends with cotton.

Others are trying to offset the vulnerability of dyed acetate to gas fading (from auto exhausts, etc.). Newest of the antigas-fading agents is General Aniline & Film Corp.'s recently patented (U.S. No. 2,706,142) di-tert-butyl phenoxyethyldimethylaminoethyl ether, which reputedly does its job without altering the fiber's color.

•

Tide Fund: The Florida House of Representatives' Red Tide committee will recommend that the state spend $250,000 over the next two years to combat the fish-killing algae (*CW, Nov. 20, '54, p. 80*). According to committee chairman Rep. D. C. Jones, Jr., the money would be spent on research at the University of Miami marine laboratory ($60,000/year) and the University of Florida ($30,000 for two years). An emergency fund of

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RESEARCH . . . . . .

$100,000 will be supervised by the state cabinet. Subject of another proposal is the establishment of a coordinating committee of state and federal agencies to consolidate their separate efforts aimed at control of the marine plague.

•

Tough Catalysts: Two new petroleum-cracking catalysts, developed by Davison Chemical Co. (division of W. R. Grace & Co.), are making their debut. One is a high-alumina (25%) product that is said to maintain its activity for comparatively long periods; the other is a low-density catalyst with good attrition resistance.

•

Atomic Policy: Effective July 1, the Atomic Energy Commission will supply radioisotopes at 20% of the catalog price to domestic users engaged in biomedical, agricultural and medical research. Heretofore the discount has been available only to cancer researchers. Applications for the reduced rate will be handled by AEC's division of biology and medicine. Investigators or institutions receiving the discount must agree to publish the results of their research.

•

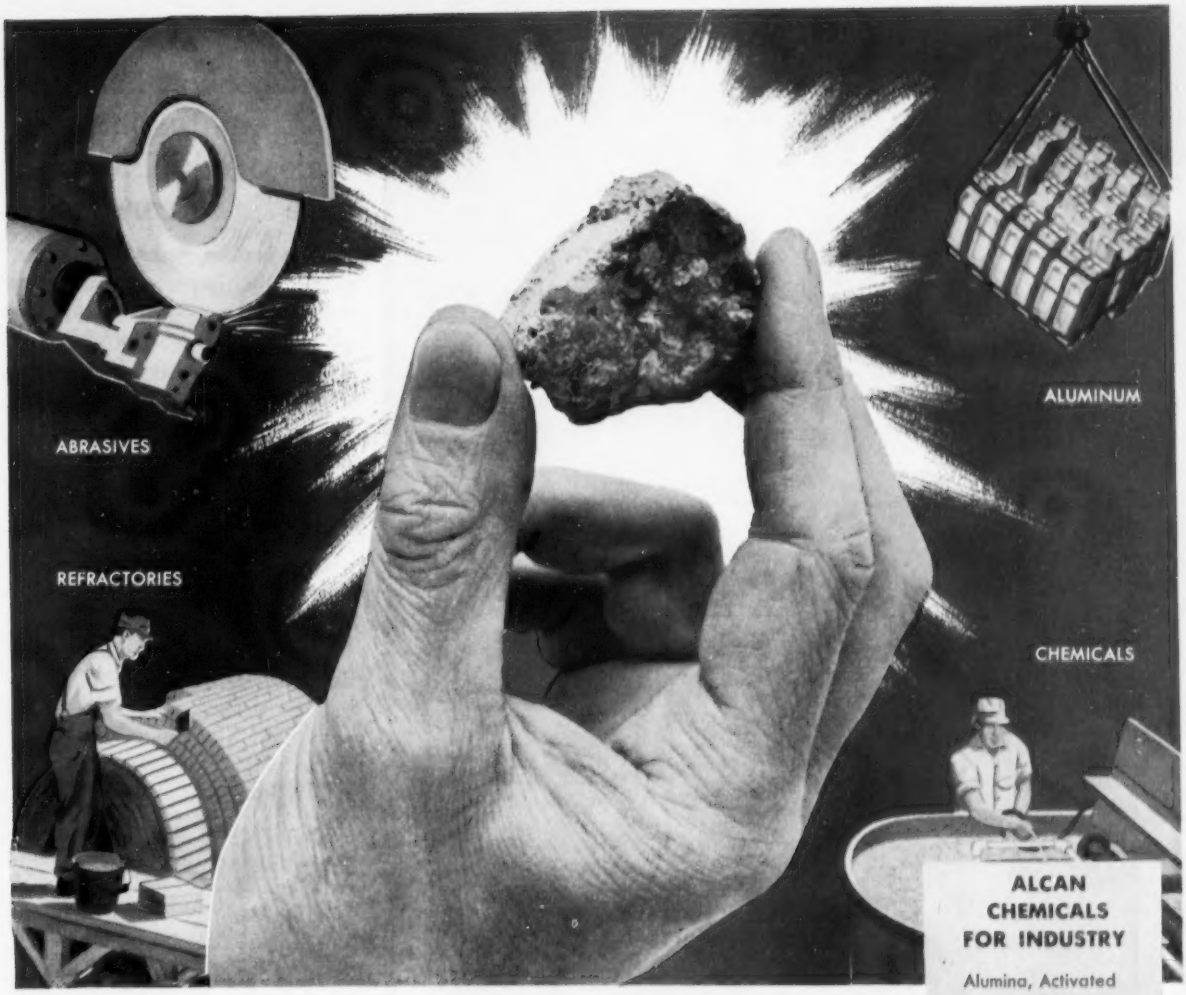
Soil Upgrader: According to newly granted patent 2,689,173 (assigned to Atlantic Refining Co.), soils treated with alkyl benzene sulfonates soak up more rain, yield nutrients more readily to vegetation than do untreated soils. The improved water-holding ability of treated soils may be of value in areas susceptible to flash flood damage.

•

Place in the Sun: Concerned about solar energy for chemical processes? This and other topics of industrial significance will be covered at the World Symposium on Applied Solar Energy to be held at Phoenix, Ariz. (Westward Ho Hotel), Nov. 1-5. Sponsors of the meeting are Stanford Research Institute, University of Arizona and the Assn. for Applied Solar Energy.

•

Fungus Stoppers: Olin Mathieson was recently assigned patent 2,696,502 on the fungicidal reaction product of perchloromethyl mercaptan and styrene. British patent 716,020, to Badische Anilin- & Soda-Fabrik details fungicidal derivatives of cyclohexadienone.



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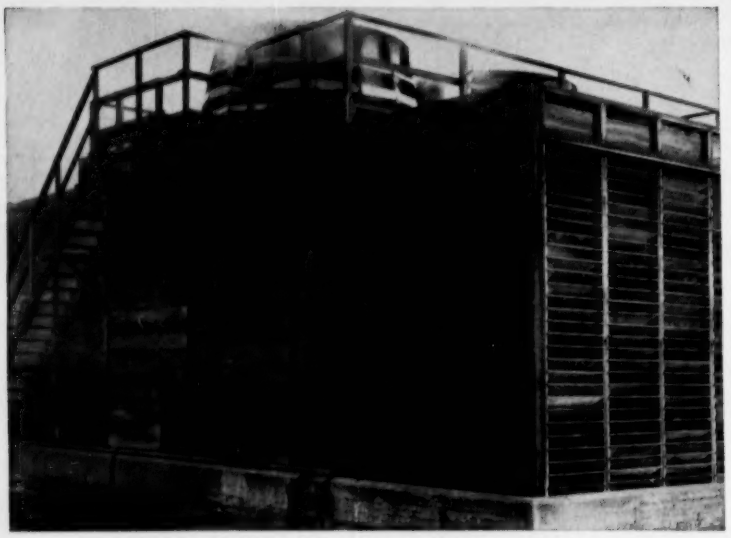

This wooden cooling tower is typical of the many places where Monsanto Penta can be used to preserve wood.

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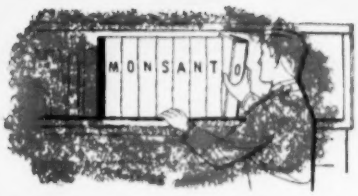

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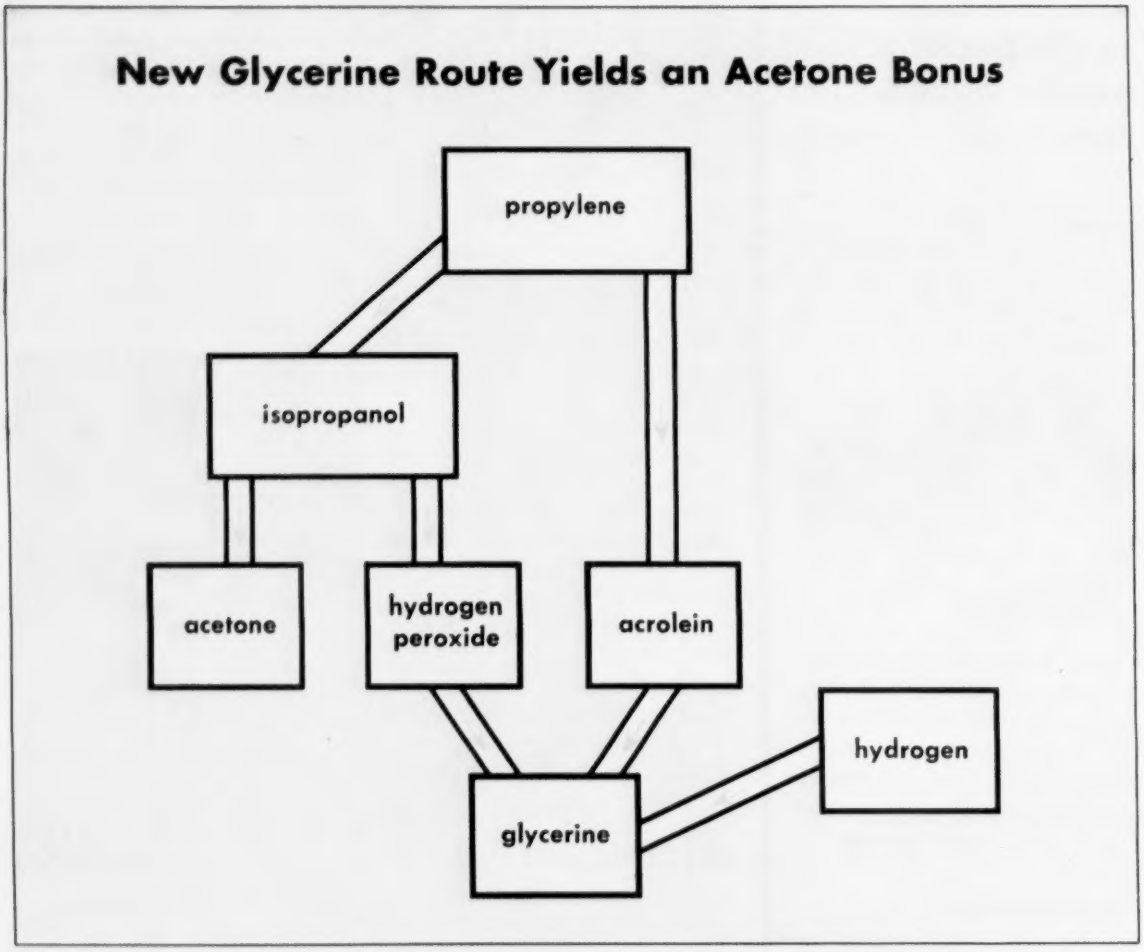

Glycerine Payoff in Propylene Parlay

Shell Chemical, whose synthetic glycerine process was a significant contribution to modern chemical engineering, now has another process based on acrolein and hydrogen peroxide.

And actually, the processes of making the intermediates are potentially as important as the end product.

Here's CW's appraisal of how it will be done.

Any similarity between the glycerine process outlined above and one now being used in a commercial plant is confined solely to the starting material and the final product. It's the most likely combination of processes that Shell is planning for its new synthetic glycerine project in Norco, La. (*CW, Newsletter, April 23*).

Shell is presently keeping details of the venture a close secret. It says merely that it plans to start work on a 30-million-lb./year hydrogen peroxide plant immediately; later, it will add an acrolein unit; and finally, it will use the two to make glycerine. It adds that the hydrogen peroxide will be made from refinery products and will be made by a nonelectrolytic method. Further, it implies that the acrolein will be made by the catalytic oxidation of propylene and that all three products will be made by Shell-developed processes. Fitting this information together with published work of Shell researchers and placing them within the pattern of Shell's present activities and known interests, it's hard to escape the conclusion that the project will encompass the reactions sketched on this page.

This is how the three processes will probably shape up:

Glycerine

The classic laboratory preparation of acrolein starts with glycerine. Shell, however, will reverse this reaction. Presumably it will react the acrolein and hydrogen peroxide to form glyceraldehyde, which will be hydrogenated to glycerine.

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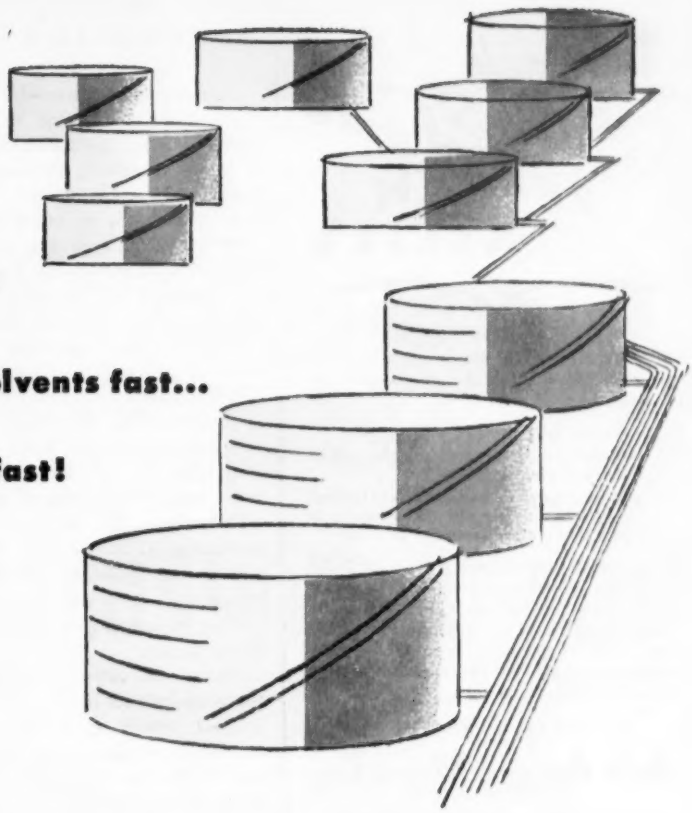

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Metallic inks for use on cellophane, glassine, foil, and plastics

Adhesives for ceramics, cork, leather, metals, paper, and plastics.

Clear, flexible, high-gloss coatings for decoration and heat-sealing.

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CHEMICAL DIVISION
Leominster, Massachusetts

Acrolein has previously been nominated as a starting material for glycerine. But though chemically it's a sound reaction, economically it's been unthinkable. Here's why: Currently, acrolein is being quoted at 47¢/lb.; 35% hydrogen peroxide at 51.5¢/lb. of contained peroxide. All told, then, you'd be using just about 48¢ worth* of chemicals to produce a pound of glycerine that sells for 30¢—even if you had a process that was 100% efficient.

A comparison like that, of course, isn't fair, because the price of acrolein will undoubtedly plummet now that large-scale production is under way (*CW, April 30, p. 82*). Similarly, technological advances in the manufacture of hydrogen peroxide, particularly by nonelectrolytic processes, can be expected to drop the price of the peroxide.

At the same time, a study of the raw-material costs for Shell's new glycerine process serves as a framework to assess the economics of the venture and to give an indication of the size of its contribution.

In a case like this, you can normally figure that the raw materials will amount to roughly half the selling price of the product. If, being ultra-conservative, you allow two-thirds, you find that to sell glycerine for 30¢/lb. Shell will have to charge its raw materials at 20¢. If you make the further assumption that the present relationship between the two is maintained, it means that Shell will be charging acrolein to the process at 20¢/lb., hydrogen peroxide at 21¢/lb. This should give pause to present and prospective producers of both.

Chlorine Bypass: In its original synthesis of glycerine, Shell chlorinates propylene to form allyl chloride, which is converted into the chlorohydrins and then into glycerine. The new process will get to the same product without utilizing chlorine.

The elimination of chlorine in the production of glycerine has been a favorite subject for research. Du Pont developed a process involving formaldehyde, carbon monoxide and hydrogen—comparable to its ethylene glycol process (*CI Newsletter, Jan. '49*). Shell itself had previously worked up a method of getting to allyl alcohol from acrolein and an alcohol like isopropanol (*CI Newsletter, Nov. '49*). If isopropanol is used in this process, acetone is coproduced. Atlas, of course, will accomplish essentially the same thing if it goes ahead with its proposed fermentation method of producing glycerine (*CW Newsletter, March 13, '54*).

* 0.61 lbs. of acrolein: 29¢; 0.37 lbs. of peroxide: 19¢; the charge for the small amount of hydrogen is negligible.

Hydrogen Peroxide

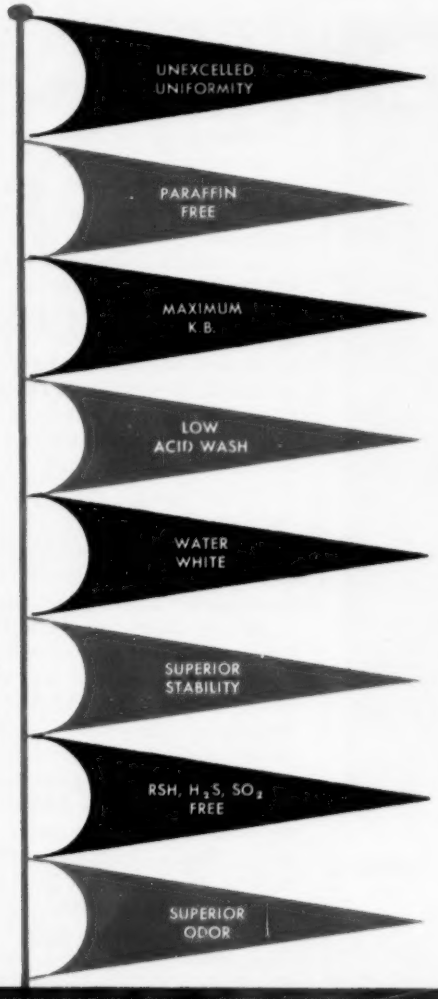
Nonelectrolytic hydrogen peroxide has also been a pet subject for research. Du Pont is currently producing by a nonelectrolytic method (*CW, Aug. 15, '53, p. 80*), thought to be based on anthraquinones. Allied is building a nonelectrolytic peroxide plant in Syracuse, and several other firms, notably Becco, have been doing a lot of process development on the problem.

Shell itself has had a long-standing interest in hydrogen peroxide. It did a considerable amount of investigation into the oxidation of propane to make hydrogen peroxide. It found that by using a relatively small proportion of oxygen to propane, it could produce hydrogen peroxide and organic peroxides (U.S. Pat. 2,376,257). Then by converting the organic peroxides into nonperoxides (acids, for instance), it could distill them off easily (U.S. Pat. 2,461,988).

Although the propane-based process attracted considerable attention, it's more probable that Shell, for its plant in Norco, will use a different process starting with isopropanol. In this process (British Patent Specification 708,339; U.S. Patent applied for), Shell employs a liquid-phase oxidation of isopropanol to turn out hydrogen peroxide in almost-quantitative yields, and large amounts of acetone. To keep the alcohol from vaporizing, the reaction is carried out at higher-than-atmospheric pressures; best operating temperatures range between 90 and 140 C.

Products from the reaction—unreacted isopropanol, in addition to the acetone and peroxide—are diluted, a stabilizer is added and the mixture is fractionated.

The beauty of the method is, of course, that acetone is produced as a by-product. Very little is known about the economics of the process. But if the hydrogen peroxide can be produced competitively, the acetone should prove a handsome bonus. There's a strong belief in the trade, in fact, that



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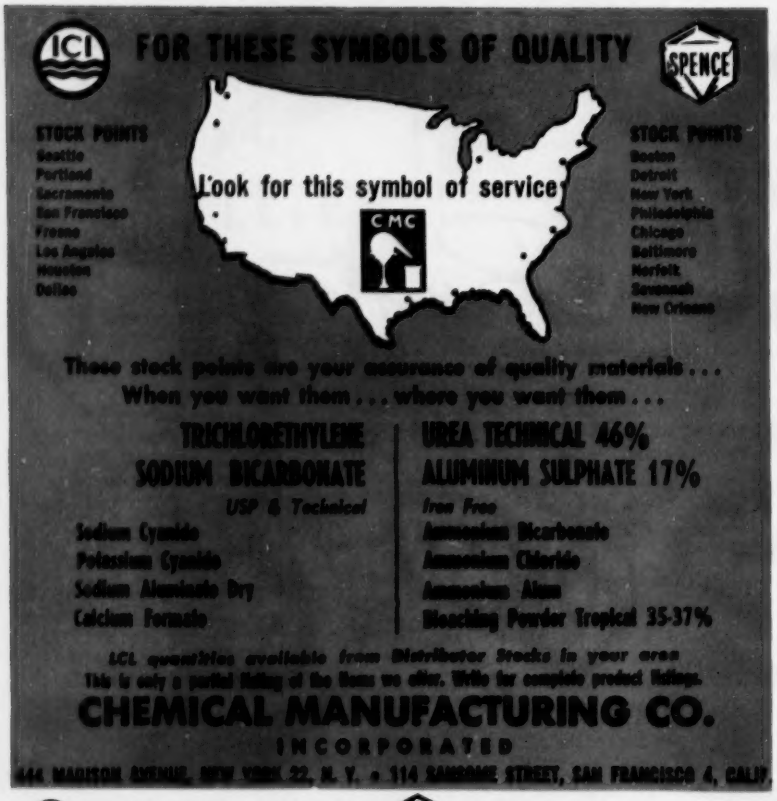

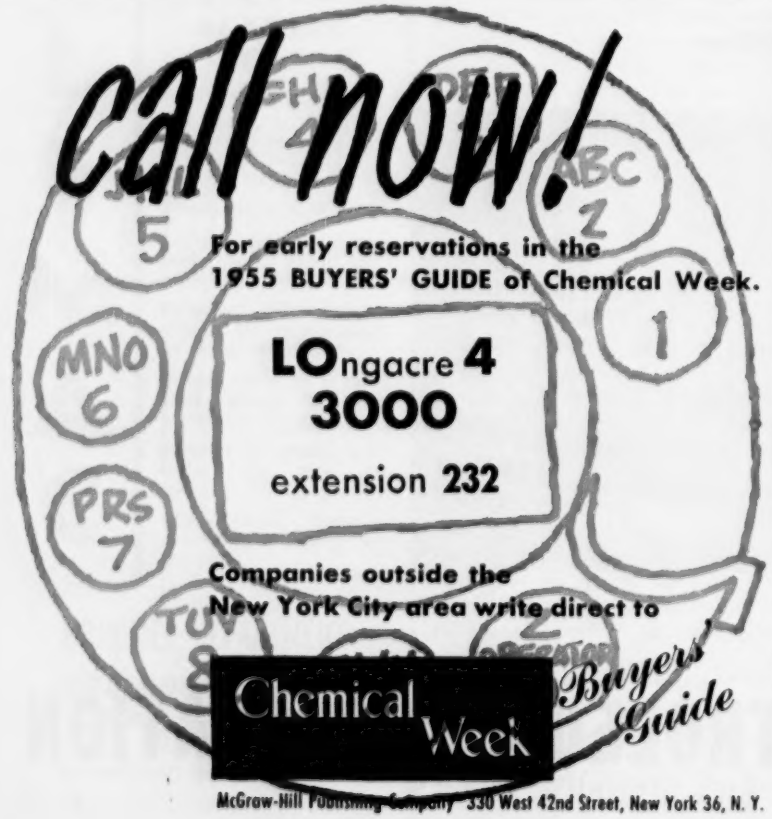
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this process may be Shell's answer to acetone made as a by-product of the phenol-from-cumene processes.

Theoretically at least, 1.7 lbs. of acetone is coproduced with each pound of peroxide. Thus Shell's 30-million-lb./year peroxide plant would entail acetone production in the neighborhood of 50 million lbs.

Shell is not alone in realizing the advantages of making the two products from isopropanol. Du Pont worked up a similar process (U.S. Pat. 2,479,-111). The Du Pont process, a vapor-phase oxidation, has never been commercialized, however.

Acrolein

Shell has never made any secret about its interest in acrolein, started a market development program as long ago as 1937. At the start of World War II, it started process development on a direct, catalytic oxidation of propylene. Its key patent (U.S. 2,451,485, *CI, Sept., '49, p. 340*) covers a reaction at 200-400 C resulting in yields of up to 86% of the propylene processed.

Flexibility Plus: It's impossible at the moment to measure the exact impact of Shell's latest moves. It will, certainly, give the firm a great deal of flexibility in its operations. For instance, its older route to glycerine will continue to bulk big, for it turns out chlorohydrin—key intermediate for the fast-growing epoxy resins.

Its newer route puts it squarely in the hydrogen peroxide and acrolein business because, while much of the material will be captive, Shell expects to have "substantial" quantities of both for sale. And if, as expected, it chooses the isopropanol oxidation to get the peroxide, it will have another method of making acetone. (Shell's standard process to make acetone also starts with isopropanol, does not produce the peroxide). The acetone is important, too, in the manufacture of epoxies: it reacts with phenol to produce bisphenol A, which, with the chlorohydrin, forms the epoxy resin.

All this puts Shell in an enviable position: It has two routes to glycerine, two routes to acetone, and a fistful of processes to turn out attractive intermediates. A pioneer in petroleum-based chemicals and a major producer of them, Shell is, in effect, serving notice that it's prepared to cash in on new developments while consolidating its present position.

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Glycerine

available whenever needed . . .

GRAFTS FOR FAILING EYES

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The future is more promising. Even stockpiling is a possibility, because scientists have found a way to preserve grafting material indefinitely, without affecting sight-restoring powers.

The new technique, now being experimentally used in hospitals, relies on subzero temperatures—and saline solutions of *Glycerine*.

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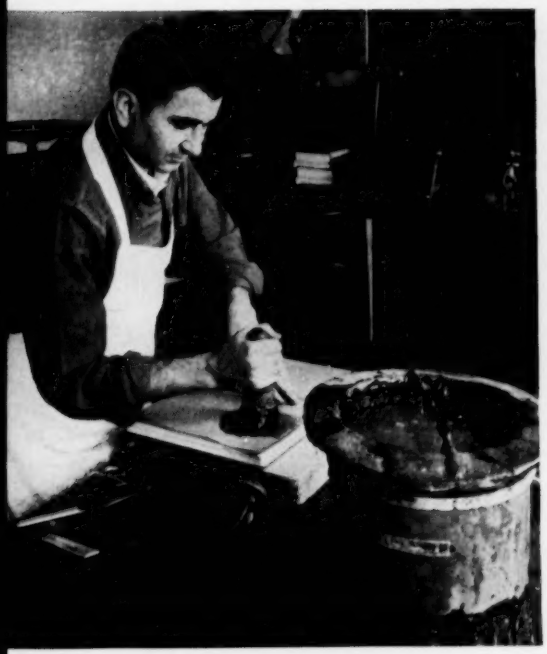
Life on the Chemical Newsfront

Photo courtesy American Fruit Grower

"ONE OF THE MOST USEFUL NEW INSECTICIDES." That's what State and Federal researchers say of Malathion, the versatile insecticidal chemical 0-0-dimethyl dithiophosphate of diethyl mercaptosuccinate, developed and manufactured by Cyanamid. For home garden use, Malathion is an all-purpose insecticide controlling a range of pests for which three or four insecticides were required previously. For agricultural use, the USDA accepts Malathion for control of more than 75 different insects on more than 40 crops, yet its toxicity to man and animals is very low, lower than DDT. Malathion residues disappear rapidly; usually less than one part per million remains ten days after application. It has a remarkable record of plant safety on practically all species of ornamentals, fruits and vegetables. (No. 1)

COAL MINERS STAKE THEIR LIVES on the blasting caps they use. At the Cleveland Coal Show, May 16-19, Cyanamid will exhibit to miners AMERICAN Electric Blasting Caps designed by Cyanamid research to assure maximum safety on every shot. The detonating power is more than sufficient to set off most insensitive explosives. Color-coded Organosol insulation on the leg wires is compounded of 5 layers of plastic having high electrical and mechanical strength. Timing-precision, water-tightness and handling-ease give high reputation to these blasting caps among men who know blasting best. (No. 2)



NIMAL GLUES STAY FLUID FOR DAYS with less than 1% of yanamid's Dicyandiamide (based on dry solids) added as the idizer. This *non-progressive* property imparted by dicyandiide, a property many other fluidizers lack, means glues stay rkable and spread smoothly for days, give better results, st less. **(No. 3)**

GUANYLUREA PHOSPHATE is an effective corrosion inhibitor in the new water-based latex-type paints. No rusting of the tin can or discoloration of the paint were observed when about 1.0% guanylurea phosphate was used at pH 8. Hot aqueous solutions of guanylurea phosphate for metal cleaning remove rust and passivate steel surfaces by forming a phosphate coating. **(No. 4)**

RMINAL BLOCKS WITH EXCEPTIONAL STRENGTH, both ectrical and mechanical, are being molded for the U. S. avy from Cyanamid's new MELMAC® Molding Material 135, shown in the inset. A unique melamine-glass high-mpact molding material, MELMAC 3135 has very high c and flame resistance. It can be compression- or transfer-olded into small or large parts, can be preformed and reheated, and flows so well that intricate and thin-sec-oned parts can be molded without "shorts." **(No. 5)**

AMERICAN Cyanamid COMPANY
30 ROCKEFELLER PLAZA
NEW YORK 20, NEW YORK

SEND more information on the following items mentioned in the May, 1955 issue of LIFE on the Chemical Newsfront: C.W.

No. 1, 2, 3, 4, 5.

Literature ☐ **Price** ☐ **Samples** ☐ **of**_____

Name_____

Company_____

Address_____

City_____ **Zone**____ **State**_____

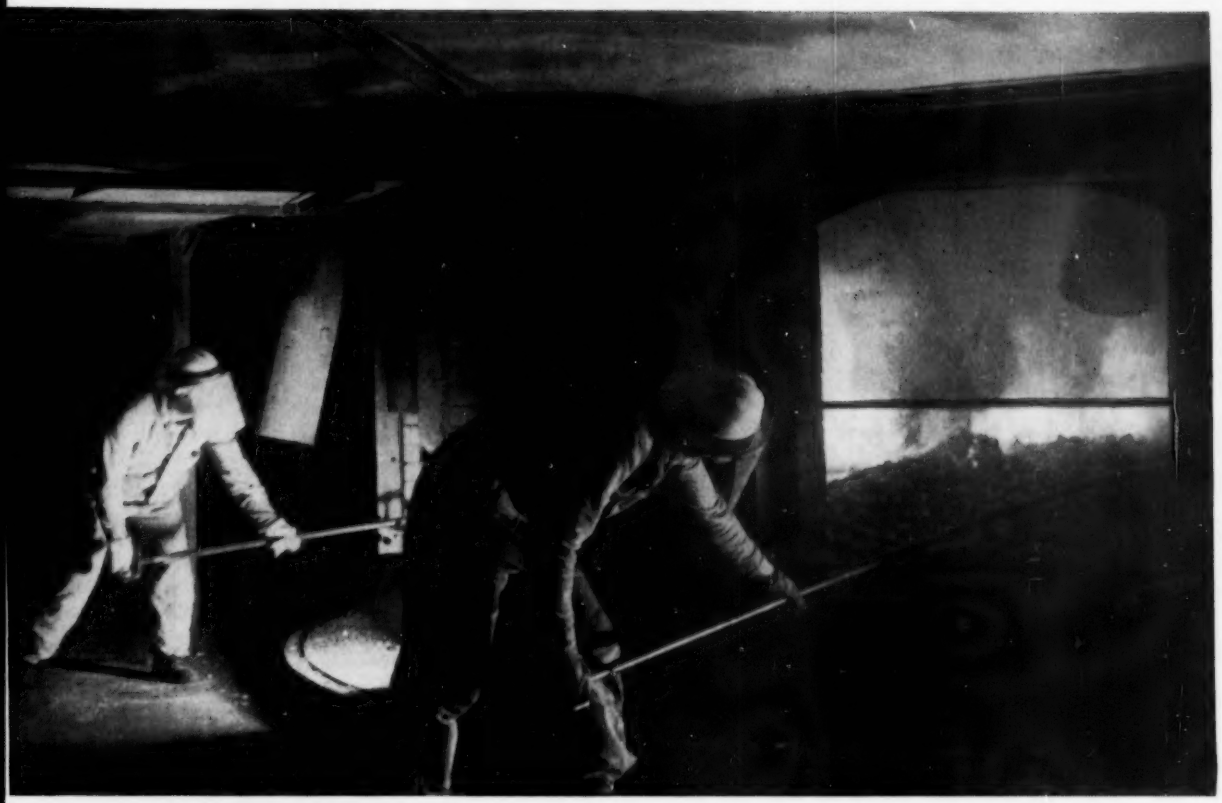
SUBMERGED ARC electrode (one of three in Dow Corning's silicon furnace) penetrates 45 in. into charge.

New Furnace Frees Silicon for Silicones

While high-purity silicon (99%-plus) for transistors has been getting most of the attention lately, Dow Corning has been quietly pushing production of the relatively impure (98%) material for silicones.

It has, for instance, just made its first tap on the new 6,000 kva. electric smelting furnace pictured on these pages. The operation is not unlike the smelting of iron ore in a blast furnace except that the reduction of silica to

TAPPER (left) keeps taphole clean with a sapling pole. During tap (right), which lasts 45 minutes, molten silicon is poured into a cart lined with firebrick and silica sand. Solid carbon spout is relined after each tap.



SMELTERS stoke and trim the flaming mixture of quartzite and coke, which is hotter than a blast furnace.

silicon requires higher temperatures.

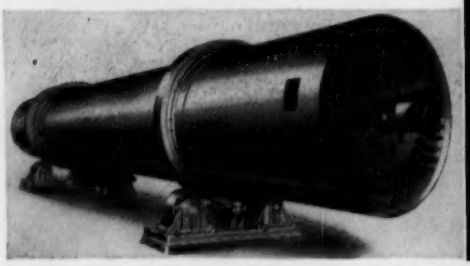
The furnace is lined with 2 ft. of carbon and 14 in. of firebrick. Heat is supplied by three "submerged arc" carbon electrodes measuring 30 in. in diameter and penetrating 45 in. into the charge. Quartzite rock, coke and charcoal are introduced into the furnace and heated to 3100 F. The flaming mixture at this point is 13 ft. wide and almost 7 ft. deep.

Every three hours, about 3,000 lbs. of molten silicon are tapped off. (A tap lasts 45 minutes.) Because of the intense heat, the tapper works behind heavy screen and walls, wears an asbestos aluminized coat and rawhide leggings. And even after the hole has been opened, he must work at it frequently to keep it clean. One device he uses is a sapling pole. When the pole enters the hole, the sap explodes into steam, showers sparks back at the tapper.

The molten mass is cooled approximately 3000 F in 2½ hours, the ingot is removed, crushed, cleaned and ground to a powder suitable as a raw material for silicone production.

MOLTEN MASS is cooled to room temperature. Running 98% silicon, it's cleaned and powdered for use in making silicones.

8'0" Diameter x 60'0" Long
"DAVENPORT" ROTARY
Steam Tube DRYER



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PRODUCTION . . . . . EQUIPMENT

Vacuum Booster: Series 150 Ring-Jet booster pumps, developed by F. J. Stokes Machine Co. (Philadelphia), provide greatly increased pumping capacity in the 10-500 micron pressure range. A ring of jets replaces the jet cone of conventional diffusion and booster pumps, thereby increasing both cross-sectional area of airflow path and pumping speed. Five models ranging from 4- to 16-in. sizes cover pumping speeds to 7,650 cfm.

•

Bundle Puller: Heat exchanger tube bundles can be pulled with greater ease and safety by a new hydraulic handling device engineered by the Fabricated Products Division of M. W. Kellogg Co. (New York). Mounting directly on the bonnet-end flange, the Hydro-ejector eliminates "jerry-rigged" pulling beams, delivers an accurately aligned thrust of 12,000 lbs. Equipment is supplied as a complete packaged unit to accomodate any exchanger from 8-in. I.D.

•

One-Way Turbine: To prevent damaging backspin caused by a fluid column receding through a vertical turbine pump, ACEC Electric Corp. (New York) has equipped its vertical hollow-shaft pump motors with new Bal-lok nonreversing, ball-type ratchets. Balls are disengaged from ratchet recesses by centrifugal force when motor rotates in proper direction, but lock rotor within 1/72 of a revolution in the reverse direction. Bal-lok ratchets are offered on all motors to 200 hp.

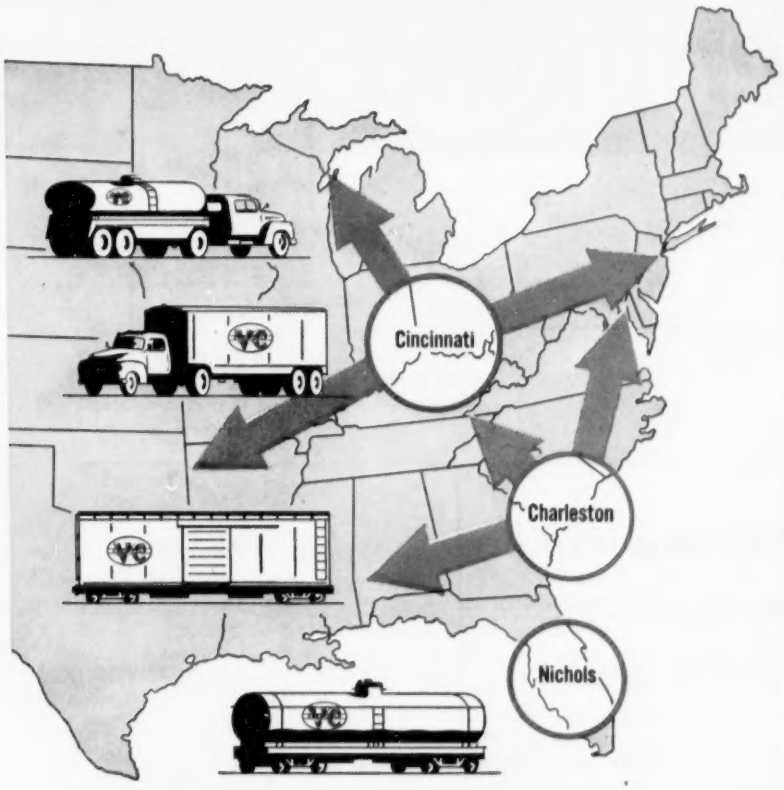
•

Insulating Seal: The National Bureau of Standards has devised a new high-pressure seal for eliminating leakage around electrical connections to pressure vessels. A sapphire bushing provides high mechanical strength and good electrical insulating properties, enables seal to withstand pressures to 170,000 psi.

•

Ball Joints: Spincraft Inc. (Milwaukee, Wis.) now offers prefabricated flexible ball joints spun from light sheet metal. Only a quarter as heavy as conventional cast-iron joints, the new units require no heavy supports, are said to be economical to install in exhaust and blower systems. They are available in 8 sizes for 3- to 12-in. pipe.

How to have inventories without carrying inventories



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†MFD. UNDER U. S. PAT. 2,678,940

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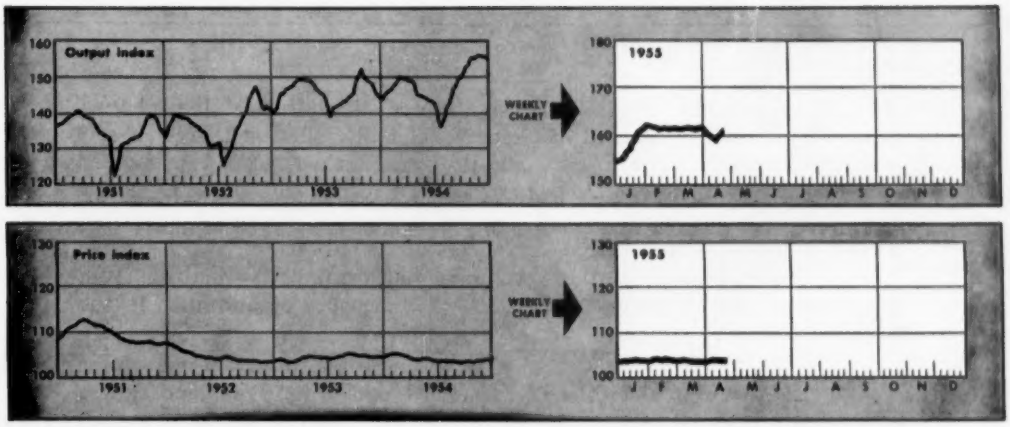
MARKETS . . . . . .



WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947-49=100)	162.1	162.9	145.2
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.3	104.2	104.3
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	406.7	400.6	294.5

MONTHLY INDICATORS—Production (Index 1947-49=100	Latest Month	Preceding Month	Year Ago
All Manufacturing and Mining	137	135	126
All Chemical Products	154	154	142
Industrial Chemicals	176	175	150

MARKET LETTER

Conspicuous by their absence. The time-worn cliche is aptly applied to price changes on chemicals during the past few weeks. There have been few significant ups or downs. About the only noticeable action this week centers on imports and resellers.

For instance, imported hot-pressed naphthalene has notched up to where price apparently is nullifying customers' desires. Current tag, nominally, is at 6¾¢/lb.—and sellers are reaching for more—for what little of the 78° material is available. Quotes for third-quarter shipments touch 7¢/lb., but buyers' resistance may prove too formidable to maintain that much of a level over domestic prices.

Domestic naphthalene producers still report a tight market condition, with many making shipments—especially to phthalic anhydride makers—right off the line. How long the pace will last is a matter of some conjecture among observers. Many expect a slowdown, perhaps within a month or so.

•

Phthalic anhydride in the resale market (when available) continues to bring a premium of 4 or 5¢/lb. This despite primary producers' efforts to thwart the phthalic-scalping.

Some material, however, has been coming in from abroad and finding a ready outlet among consumers operating under producer-allocation systems.

Part of the phthalic pressure, of course, stems from the current paint-season spur for alkyd resins. The latter continue to move actively,

particularly for latex-base paints, and odds are the brisk demand will continue at least for some weeks.

•

Almost in direct contrast is the still-dull pyridine picture. Demand for the 2° material has been consistently slow, with few if any spurts in activity. The drastic 20¢/lb. price cut posted a few months ago (*CW Market Letter, Jan. 15*), which chopped schedules to a low 75¢, hasn't, to any great extent, fulfilled marketers' hopes. A sustained pickup is yet to materialize.

Some producers, though, aren't too pessimistic—nibbles from a number of new customers have injected a measure of optimism in the pyridine outlook.

•

On the other hand, the hydrochloric acid supply/demand future may remain dark for some time to come (*see p. 88*). Marketers, loaded with inventories, find it tough to move their surplus at a profit.

Indicative of the present economics of hydrochloric production is the fact that Du Pont finds it more reasonable to purchase HCl than to make all it needs for neoprene. At the moment, the company's hydrochloric operations at Louisville, Ky., are half shut down. Requirements are being made up by byproduct from Stauffer's nearby carbon tetrachloride facilities.

•

To the North, too, muriatic is becoming more of a problem. Total Canadian production of byproduct HCl is steadily increasing—so much so that one maker writes: "We are now singing a Canadian version of the old American song, 'Where can we sell our muriatic?' "

The surfeit situation, both here and in Canada, is doing much to revive interest in a commercial process of converting HCl into chlorine. A few years ago several patents for such a process were granted, but today only one U.S. firm is actively engaged along those lines.

•

In the field of chemical metals, magnesium output is beginning to pick up again. The up-tracking signals the end of Dow Chemical's planned lull between curtailed production at Midland and full-scale product-rolling from its new Madison, Ill., plant (*CW, Jan. 15, p. 71*).

First-quarter U.S. wrought shipments—extrusions, forgings, plate, sheet and strip—climbed to 2,685 tons compared with 1,660 tons for the same period last year, and 1,985 tons for '54's final quarter.

•

Capsule rundown on vitamin B_6. February's output topped January's—2,968 lbs. vs 2,063; domestic price is slashed 9¢/gram to 46¢/gram.

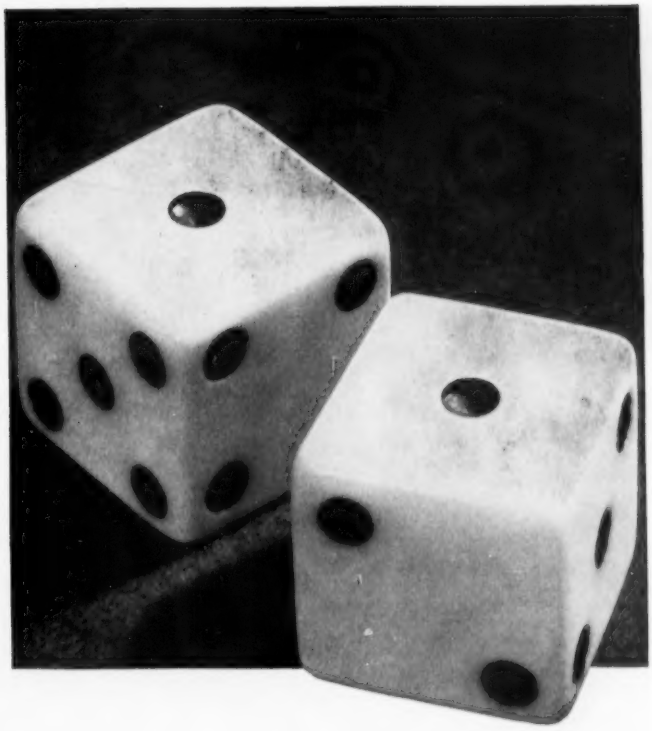
SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending May 2, 1955

DOWN

	Change	New Price		Change	New Price
Carnauba wax, No. 3, Ceara, refd., pure, bags, ton lots	$ .02	$ .69	Lemongrass oil, cans, drums	$ .20	$ 2.05
Ionone, alpha, cans	.25	6.50	Mercury, metal, 76-lb. flask, per net flask	1.50	314.50
" beta, cans	.20	6.00	Pyridoxine hydrochloride (vitamin B_6), bottles, 100-gram lots, gm.	.09	.46
" methyl, standard, cans, drums	.10	6.10			

All prices per pound unless quantity is stated.

gambling with flammable solvents?



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Chicago 12, Illinois

Dixie Solvents & Chemicals Co.
Dixie Highway at Appleton Lane—Atwood 5828
Louisville 16, Kentucky

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1650 Luett Ave.—MElrose 8-1361—Indianapolis 22, Ind. Nelson Road East—Anthony 0213—Fort Wayne 8, Ind.

Missouri Solvents & Chemicals Co.
419 De Soto Ave.—GArfield 1-3495
St. Louis 7, Missouri

Ohio Solvents & Chemicals Co.
3470 W. 140th St.—CLearwater 1-3770
Cleveland 11, Ohio

Southern Solvents & Chemicals Corp.
1354 Jefferson Highway, P. O. Box 4067, Carrollton Station—Temple 4666
New Orleans 18, Louisiana

Texas Solvents & Chemicals Co.
8501 Market Street—Orchard 6683
Houston 15, Texas

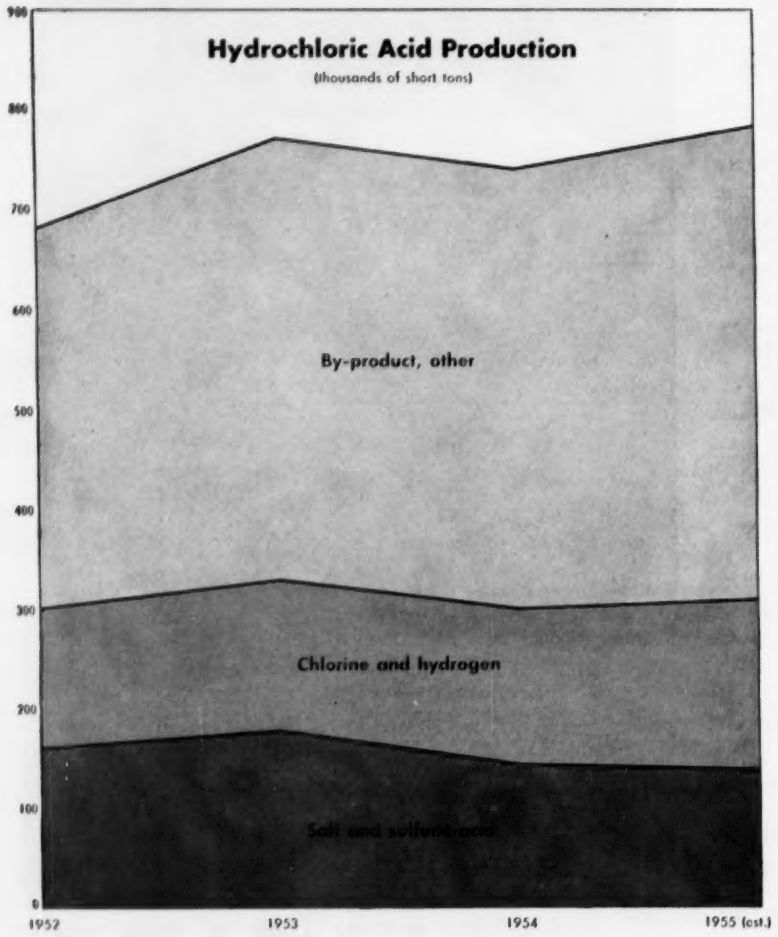
Western Solvents & Chemicals Co.
6472 Selkirk Ave.—WAlnut 1-6350
Detroit 11, Michigan

Western Solvents & Chemicals Co.
Central Ave. at Reynolds Road—Jorden 0761
Toledo 8, Ohio

Western Solvents & Chemicals Co. (Canada) Ltd.
1454 Crawford St.—CLearwater 2-0933
Windsor, Ontario

Wisconsin Solvents & Chemicals Corp.
1719 South 83rd St.—GReenfield 6-2630
Milwaukee, Wisconsin

Wolverine Solvents & Chemicals Co.
1500 Century Ave., S. W. —CHerry 5-9111
Grand Rapids, Michigan



Plenty Is Too Much

Oversupply is, at one time or another, characteristic of just about every chemical commodity. But in the case of hydrochloric (muriatic) acid, a surplus, when it occurs, really shows. So it is today.

Total hydrochloric acid production in the U.S., by the end of this year, will likely hit a bloated near-785,000 tons. Another comparison scale for the current flood of acid is this: as recently as a decade or so ago, U.S. output amounted to some 340,000 tons—much less than half of '55's expectations.

Plaguing hydrochloric-surrounded marketers, too, is the thought that the surfeit may extend well into '56, and perhaps beyond. For consumption, despite a seemingly endless list of outlets for the material, isn't soon likely to catch up.

Output—Up . . . Up . . . : Hydrochloric producing units, of course, are spread out all over the country. (Last official government count in 1953 indicated at least 87 producers; there are more today.) The relatively cheap chemical comes from three major processes: salt plus sulfuric acid; chlorine plus hydrogen; organic chlorinations.

Long the standard method of turning out muriatic has been the reaction of salt and sulfuric in a Mannheim or Laury furnace.

Output from this source, however, is—and has been—on a downgrade. Consensus in the trade is that before too many years elapse, the high-cost, low-acid-quality furnace method will become obsolete. The deduction seems fairly valid when one notes that a short three years ago, salt-sulfuric hydrochloric accounted for almost 25% (162,400 tons) of U.S. production. This year the tally probably will not be more than 18%, or about 140,000 tons.

Far and away the greatest producer of hydrochloric acid currently, and likely to remain so for many years, is organic chlorination. Byproduct acid from chlorination, particularly of such hydrocarbons as natural gas, olefins, benzene, etc., has shown some remarkable increases.

For instance, in 1947, when byproduct acid for the first time matched the quantity produced from the hoary salt-sulfuric route, each ticked off some 40% of the total.

Five years later, the byproduct cut had risen to nearly 55%, and may now account for slightly more than 60%. Some pertinent figures: for '52, 380,-700 tons; an estimate for '55, 475,000.

Until recently, burning chlorine in a hydrogen atmosphere hovered in the middle in relation to total production. Prior to the last three or four years, such HCl gas and acid measured about 20% of the total made. Since then, there's been an abrupt switching in production positions between salt-acid and chlorine-hydrogen sources. The latter has inched up to account for some 22% of the available hydrochloric. A preliminary figure for last year is 157,800 tons, but the production rate currently is running at approximately 170,000 tons/year—with definite indications that the future will show further increases.

International Minerals & Chemical is the latest to enter the chlorine-hydrogen field. An HCl installation (part of the company's recently completed $2-million expansion and modernization program at its Niagara Falls plant), can turn out about 20,-000 tons/year of water-white acid.

This material is not ordinarily competitive with byproduct acid. It still commands comparatively premium prices from customers who require better-grade hydrochloric.

Hydrochloric End Use
(estimated)

	%
Chemical manufacture	35-40
Petroleum industry	20-25
Metals	15-20
Glucose and food	10-15
Misc. and resale	10-15

Consumption—Down . . . Down: But posted prices on industrial muriatic—especially in localized, near-saturated areas—are currently being nonchalantly manipulated in the scramble for consumers. That's particularly true in the South and Southwest, where the ratio of imbalance between supply and demand is distressingly noticeable.

Underscoring the condition prevailing in that section of the country is the little-or-no effect a strike at one hydrochloric producer's plant is having on the supply position. Warehouse stocks and production by other manufacturers in the area are more than ample to take care of all consumers' needs at the present time.

In contrast, markets in the East and Central U.S. are rosier. But here's one astute seller's summation: business is better, yes, but it's still far from full-blooming.

A Turn-up—Maybe: Consumption of hydrochloric, however, may be in for a pickup. The steel industry, for one, is a hefty user of the acid, and right now it's rolling along in high gear. And the acid, too, a heavyweight in a raft of organics and inorganics, will benefit from the anticipated general upsurge in the chemical industry (*CW, April 23, p. 32*).

Principal outlets for hydrogen chloride and its aqueous solution vary in various parts of the country (e.g., glucose and food uses in the Midwest), but on a national scale, the chemical and petroleum industries rate top spots (*see end use pattern*). Acidization of oil wells, to enlarge the drainage channel in carbonate rock (primarily limestone) so the rate of recovery and recoverable portion of the oil is increased, is the major use in the oil category.

There's some competition rearing in the production end of the oil business, due to inroads being made by another extraction system, the fracturing process (Hydrofrac, Sandfrac, etc.).

In another petroleum-industry outlet—isomerzation of n-butane to isobutane to provide "alkylate" for aviation gasoline—use of hydrochloric acid is nowhere near its peak-Korea consumption. The hot breath of defense need, though, could fan the requirement flame on short notice.

In organic chemicals production, HCl filters into various dyes and in-

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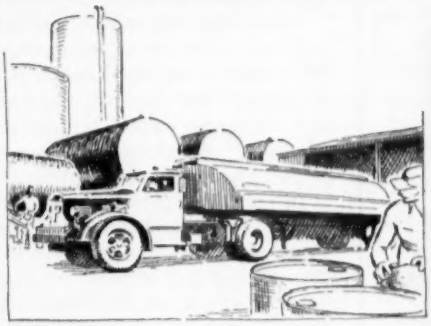

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termediates. It's no news, of course, that textiles have been dragging over the last few years, but lately the outlook has brightened—and with it, hopes of HCl marketers have perked.

Other important uses for anhydrous acid are in the production of ethyl chloride (for tetraethyl lead); in reaction with acetylene (to make vinyl and vinylidene chlorides); and manufacture of chloroprene, which winds up in neoprene synthetic rubber.

Just to list all the outlets for hydrochloric would probably fill a book. In metal treating alone, it spreads out into pickling and etching; for descaling heat equipment and boiler tubes; cleaning scale or rust from metal surfaces.

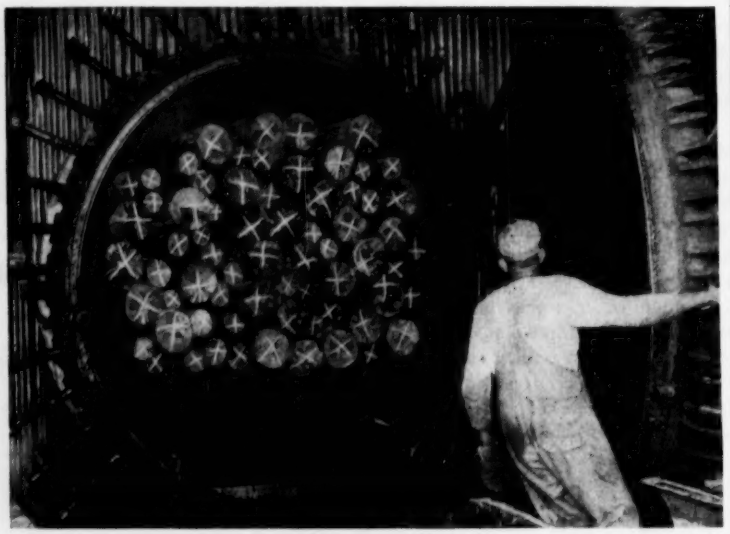
The Texas City tin smelter has taken considerable amounts to leach roasted tin ores; and tantalum, tungsten and molybdenum ores are refined via hydrochloric.

Largest use in the food industry continues to be in the conversion of corn into corn sugar, but recent widespread acceptance of monosodium glutamate as a food flavor enhancer has also been relished by sellers of HCl. Glutamate production—rated at about 10 million lbs./year as late as 1951—may, in the next year or so, double.

On the whole, however, hydrochloric acid usuage is relatively stable from year to year. Thus, any worthwhile expansion in consumption depends chiefly on the building of new plants which would use the material, and the ability of hydrochloric to edge into markets now held by other chemicals.

One formidable—and long-time—opponent for many of the same outlets is sulfuric acid. At times when the latter has been in short supply, hydrochloric has moved into the breach. Price per pound, too, has often been a potent persuader for one or the other heavy chemical.

The passing of penny-a-pound sulfuric acid may well be today's prod for brisker hydrochloric movement.



Threefold Penta Boost

THE MARKET for pentachlorophenol in wood preserving continues to swing open. With Long-Bell Lumber—rated the second largest lumber firm in the country—expanding preservation facilities to include pressure treatment with the penta (*see cut*), consumption in '55 is expected to notch up to some 9 million lbs.

That's a greater than threefold increase over 1951's 2.9 million lbs., and tops last year's indicated 8.2 million.

(Advertisement)

CHEMICALS OUTLOOK

May, 1955

This news bulletin about Wyandotte Chemicals services, products, and their applications, is published to help keep you posted. Perhaps you will want to route these and subsequent facts to interested members of your organization. Additional information and trial quantities of Wyandotte products are available upon request . . . may we serve you?

MICHIGAN WEEK TO BE CELEBRATED MAY 15TH-21ST

Michigan Week is being celebrated May 15th through May 21st. Wyandotte Chemicals joins the nation in a salute to Michigan's achievements.

For we're mighty proud to live and work and progress and sell our products and expand and grow in the industrial capital of the world ... a thriving industrial center in a state that boasts so many advancements, natural resources, and industries to which, when described, you have to add the phrase, " ... in the world."

Michigan has one of the largest iron-ore producing regions in the world. The Great Lakes, which border Michigan, form the largest body of fresh water in the world. Michigan has the only large commercial deposit of native copper in the world. Located under Detroit is one of the most modern salt mines in the world. Kalamazoo is the celery center of the world. And there's even a bean elevator in Saginaw that's--you guessed it--the largest in the world.

Michigan boasts the largest gray-iron casting factory, the largest single Portland Cement plant, the largest billiard-table and bowling-alley factory, the largest pharmaceutical plant, and the largest commercial limestone quarries in the world.

Michigan has the world's largest shifting sand dune, the world's highest artificial ski jump, the world's longest and fastest man-made toboggan run, the world's longest international suspension bridge, the world's greatest supply of fresh water for industry.

And, of course, Michigan is the automobile center of the world.

To all this we'll add that Wyandotte Chemicals Corporation is the largest manufacturer of specialized cleaning products for business and industry--in the world. And, as a basic producer of raw material chemicals for more than 64 years, we serve some of the finest customers--in the world.

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FINANCIAL AID TO HIGHER EDUCATION

Business Help for Our Colleges A Job for All Business Firms

IN recent months, individual business firms have announced the adoption of a variety of plans, both imposing and ingenious, for financial aid to higher education in the United States. In doing so, they have taken a lead in dealing with a problem of transcendent importance both to the business community and to our nation as a whole.

Previous editorials in this special series have shown that:

1. Our colleges and universities, and particularly the independent, privately endowed institutions, are in grave financial difficulties.

2. These difficulties promise to become much more acute in the years immediately ahead unless extraordinary steps are taken to relieve them.

3. A financially crippled system of higher education is a major national menace.

If, however, the business community is to play an adequate part in helping our colleges and universities financially, the plans adopted by business firms thus far constitute merely a beginning and a set of guide posts. What is required is a general movement on the part of business firms to go to the financial aid of higher education. Such a movement would involve a myriad of individual company plans which, in the nature of the case, cannot be expected to bring great renown or publicity to their sponsors.

Rescue Operation Is Feasible

For the business community as a whole it is feasible to make a major and possibly a decisive contribution to putting our colleges and universities back on their feet financially. One percent of business profits before taxes would do it. In 1954 business profits before taxes were about $35 billion. If one percent of these profits, or $350 million, were contributed to our independent, privately endowed colleges and universities it would enable these institutions (1) to increase the salaries they pay by $200 million a year, and (2) to provide $150 million more for modernization and maintenance of their establishments. In the opinion of competent authorities, this would put these institutions in relatively good working order financially, a process to which a matching grant of $50 million by the Ford Foundation for the improvement of faculty salaries will make a large contribution. It would add about one-fourth to their present annual outlay of about $1.4 billion.

Such a contribution from business would not meet the needs of the independent institutions for new buildings and equipment required to accommodate the great increase in college enrollment anticipated in the years immediately ahead. Neither would it relieve the financial problems of our tax-supported colleges and universities. As a group these institutions have fared better financially in recent years than the

independent institutions. But they also face grave financial problems, particularly in the provision of adequate faculty salaries. It would be far simpler, however, to solve the financial problems of the tax-supported institutions if the independent colleges and universities were back on their feet financially.

One Dollar Does Work of Two

The federal government exempts 5 percent of business profits from the tax imposed upon them if the 5 percent is devoted to religious, charitable or educational purposes. (Most profits are taxed 52 percent.) A contribution of one percent of business profits to higher educational institutions would exhaust only one-fifth of this allowance. It would bring to about two percent the total share of business profits going to both educational and charitable purposes.

In 1953, business firms contributed about $400 million, or slightly more than one percent of profits before taxes to educational and charitable purposes of all kinds. Of this total about $75 million went to educational institutions, mostly colleges and universities.

For some companies it is feasible to contribute more than the average contributed by business generally. Indeed, some companies not only utilize their full 5 percent of tax-deductible funds for charitable and educational purposes but go beyond it. For other companies in financial difficulties no contribution at all is possible.

If, however, those business firms for which it is financially feasible contributed one percent of their profits before taxes to our colleges and universities, the problem of adequate support for the crucially important business of higher education would be far along the way to successful solution. **In 1954 a contribution of one percent of their profits before taxes, or about $350 million, would have reduced business profits after taxes by only about half that amount. This would have meant a reduction of about $175 million, out of a total of about $17.8 billion of profits after taxes.**

Attractive plans to channel financial aid from business to higher education have been abundantly demonstrated recently. These plans, for the most part the creation of large corporations, have included not only a broad array of scholarship grants, but such ingenious arrangements as that by which a company matches with its funds the gifts its employees make to the colleges of which they are alumni.

A full array of these plans, some of which were discussed in an earlier editorial in this series, has been prepared by The Council for Financial Aid to Education (6 East 45th Street, New York City 17) and is available for the asking. Also, colleges and universities have established in most states and regions cooperative associations to help business help them. The Commision on Colleges and Industry (912 Kahn Building, Indianapolis 4, Indiana) distributes a directory of these associations. And, of course, the colleges themselves are always eager to discuss their financial problems with business people and suggest constructive solutions.

Only Small Start Made

The plans for business aid to education which have recently attracted national attention constitute the conspicuous sort of leadership which it is the privilege and opportunity of our great corporations to provide. But the job is too large to be handled by a small number of business firms, no matter how bold or ingenious their programs.

To put our colleges and universities back on a firm footing financially the help of the great rank and file of business corporations is required. All of them, large and small, have a crucial stake in seeing that this job is done. The future of America will be decisively shaped by what happens in and to our college classrooms.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.

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Donald C. McGraw

PRESIDENT

McGRAW-HILL PUBLISHING COMPANY, INC.

RATING REACTIONS

In the style of CU's ratings of consumer goods, here is the way the testers would rate company reactions (check marks indicate preferred reactions):

What to do about bad ratings

ACCEPTABLE

√A LETTER FROM THE COMPANY discussing testing methods and criteria. Still learning better methods, the agencies carefully consider any suggestions along this line. Such letters are filed and referred to before the next test.

√RECONSIDERATION OF YOUR OWN PRODUCT, to see if their objections might not be valid. If you agree and change your product, your letter may be published; in rare instances a retest may be made.

A LETTER ASKING FOR A CONFERENCE will be considered if you set forth good reasons.

NOT ACCEPTABLE

AN UNANNOUNCED DELEGATION will seldom be received. Short of staff, the agencies don't like to waste time wrangling, like to keep at arms-length from companies.

SUING has never been successful against either agency, is seldom tried because bad publicity would be worse than the rating.

What to do with good ratings

ACCEPTABLE

√NOTE FACTORS THAT GAVE YOU HIGH RATING. Keep these up and exploit them if you like.

NOT ACCEPTABLE

USING RATING IN ADVERTISING will bring you a sharp letter from the agency. If you don't stop, pressure will be brought on you. Few advertise the ratings for long.*

USING RATINGS IN PERSONAL SELLING will bring pressure also, although this is harder for them to check.

USING RATINGS IN STORE DISPLAYS is also forbidden. CU or CR readers watch out for these and report them.

*Both publications are protected by copyright. Pressure from the agencies has been enough to stop legal paraphrasing, in most cases. The one case it was necessary to appeal to the FTC (involving untrue references to a product's rating) was decided in the agency's favor.

CU and CR: The Rating Makes a Difference

Manufacturers of automobile polishes, alkyd flat wall paints, floor waxes, and detergents will be getting report cards during the next few months.

Some products will be called "best buys," some will be rated "high in over-all quality," others will be listed in a descending order of acceptability, and an unlucky few will be labeled "not acceptable."*

The opinions on these specialties will be passed on to 700,000-800,000 people—people whose buying influence can't be ignored. The *Harvard Business Review*, after a recent survey, figures these people head 5% of the nation's households, have a buying power of $15 billion (74% expected annual incomes over $5,000, 40% over $7,500), are in business or the professions (8.3% belong to trade unions; 43.5% belong to business and professional groups), are well educated (47% in college 4 or more years).

Most important, they have an expressed interest in the ratings—they paid for the research as subscribers to monthly reports of the consumer-financed Consumers Union of U.S., Inc. (New York) and Consumers' Research, Inc. (Washington, N.J.)

Which Twin Has the Money? Both are independent organizations. Oldest (1929) is Consumers' Research, and publisher of *Consumers' Research Bulletin*. An off-shoot of CR (splintered over a labor hassle in 1936), Consumers Union publishes the more popular *Consumer Reports*. Many confuse the two—companies have been known to angrily cancel subscriptions to one after getting a poor rating in the other.

Since the split, CU has taken the circulation high road: 715,000, against CR *Bulletin's* 100,000. *Consumer Reports* are more readable and popularized than the austere, technical CR *Bulletin*. Operating budgets: CU, $2.5 million; CR, $500,000.

Some of the money is spent on publishing the magazine (no advertising), but most is spent on testing. A big part goes to buy sample products. Many manufacturers would be glad to furnish these samples free, but the testers decline, fearing they might be hand-picked, not representative, run-of-the-store merchandise. The other big part goes for salaries, overhead, testing apparatus and fees for outside testing. CU sends out half of its work, CR sends out a little more.

Their prosperity is recent. Started to help hard-pressed consumers during the depression, the purchasing guides didn't boom until the postwar prosperity gave people money to spend on products they'd never bought before, needed advice on.

What's in It for You? While they tell consumers about chemical specialties, they also tell specialty makers a lot about consumers—and competition. For example, they provide:

- Standards for products.

* Ratings in *Consumer Reports*. More Report-card-like is CR's *Bulletins* AA, A, B, C.

WHAT TO TEST? Most tests were requested by subscribers, but technical advances and uninhibited claims also send testers to the labs. Paid shoppers check shelves, determine big brands, buy samples.

• Features considered important or desirable. "We try to find out what the consumer ought to have, not what he thinks he wants," the testers say.

• Competitors' strong and weak points. Few companies test as wide a range of brands as they do.

• Prices, including price/unit measure.

• Leading brands—which are most widely distributed.†

• Testing methods.

When They're Bad, They're Horrid: There is no longer an open warfare between the testers and manufacturers—the agencies have lowered their crusading shields, no longer, for instance, recommend salt instead of toothpaste—but there's still an occasional skirmish.

Most companies tend to publicly ignore the ratings—especially, of course, bad ratings. One firm whose silver polish jumped from "not acceptable" to "good" refused to acknowledge either rating, told *CW* no change had been made in the product. (CU replied that the testing methods and criteria were unchanged.)

Detractors charge the agencies with inaccuracy and bias. "Big business" is discriminated against, mail order houses are favored, they say. An overall look taken by *Harvard Business Review* doesn't bear this out: both big manufacturers and mail order companies fared about average.

† Part-time shoppers (CU retains 174 in 84 markets) check shelves of local stores, list brands offered. The 10 or 20 brands that appear on most lists are chosen for testing.

Others charge that the agencies:

• Don't know what consumers really want.

• Can't possibly be expert at testing so many different products.

• Are subjective in their interpretations of test results.

• Hedge too much in reports.

• Aren't influential; consumers don't trouble to take their advice.

What Do They Know? Most people believe they are doing a creditable job, admit that they're right more often than they're wrong. Most fellow product-testers, working for the government, department stores and the like, have a high regard for the personnel of CU and CR. Consensus: nobody is doing better work.

CU and CR know, for one thing, that they aren't infallible. The road to unequivocal ratings is an obstacle course:

• Test samples are small because the researchers are short of money. Since only about 25% of manufacturers practice effective quality control, the small samples may not be significant.

• Products are changed more often than they are tested.

• Standard testing procedures aren't often available.

• Comparison of different qualities is difficult—which is better, a long-wearing wax or one easy to apply?*

* Usually, the reports try to present all these facts and let the reader decide. A product is rated "not acceptable" only if the testers think its disadvantages outweigh its advantages.

• Simulated use patterns (necessary to speed up testing) may only seem to be the same as actual use.

• Different people in different places use products in different ways.

• Desirable but contradictory qualities must be compromised.

Who Cares? Nobody so far as is known has done any research to see what effect the ratings have on sales. *Harvard Business Review*'s researchers got opinions from 52 sales managers whose products had been rated; half said a good rating had some effect on sales, 35% thought a bad report causes some decline. Only two saw a great effect in a good rating, none saw a great effect in a bad rating.

Logic bears out that a good rating will have more effect than a bad one. The report-readers stirred to action when a product gets a bad rating are those who now buy that brand—they'll drop it. But the readers stirred when a product gets a good rating are those who don't use it—they'll buy it. Since in almost any competitive field, there are more people not using any one brand than are, a good rating makes a bigger change in sales charts.

Big Stir: But the ratings do create a stir not consistent with their small effect on sales. Of 40 companies in the *Business Review* survey, 2 always try to change a low-rated product, 17 sometimes do. Although denying to *CW* that it was influenced by the report, the maker of a silver-brass polish found "not acceptable" (too abrasive) for silver plate soon deleted "silver"

from the label. The major effect seems to be psychological, a matter of pride within the company.

In general, giant manufacturers are least affected by ratings, mail order houses take them most seriously. Sears Roebuck & Co. has a man who does nothing but look after ratings, investigate them, get rechecks in Sears' labs.

The testing groups are building new circulation every year, getting more money to work with, learning their job better. What they learn about consumers and what they need may help specialty makers produce better products to sell to a more knowing public.

Silicones Stop Spalling

Postpouring treatment of concrete to prevent spalling has been worked out by General Electric's Silicone Division. Highway engineers utilized GE's SC-50 silicone, sprayed on concrete pavement and bridge decks, to halt chipping and cracking due to winter's freeze-thaw cycles.

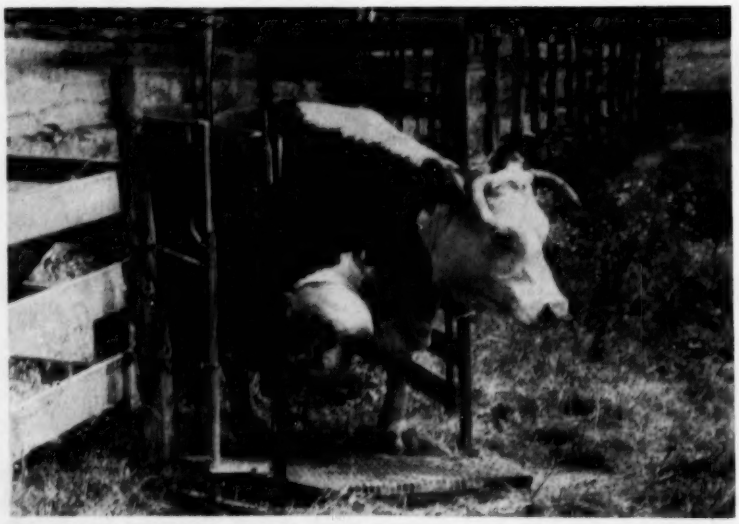
For best results, tests showed, the concrete should be treated shortly after it has cured. The chemical prevents water from soaking into the concrete, but does not make it slippery. Power equipment can be used to apply the silicone solution at a rate of 50 running feet of lane per minute.

In addition to boosting the durability of concrete under weathering conditions, the silicones are said to lower highway maintenance costs and improve road visibility. The advantage over other antispalling procedures, such as the use of air-entraining agents mixed in the concrete, is that the silicones can be applied to structures already in use.

Old Dutch Shift

Old Dutch Cleanser, the well-known scouring powder, is being sold to Purex Corp. (Southgate, Calif.) by Cudahy Packing Co. (Omaha, Neb.). Full details on the transaction haven't been made public yet, but the transfer will involve an undisclosed amount of Purex stock and cash for Old Dutch assets. President of Cudahy, Louis Long, will be elected director at the next Purex meeting.

The cleanser is now made principally in East Chicago, Ind., but some is produced in Los Angeles and Toronto.



TREADLE SPRAYER: For bovine contentment, a shower of fly repellent.

Chase-and-Kill Combination

Agreed that contented cows give more milk and fret-free cattle produce more meat, how do you achieve contented animals?

Carbide and Carbon Chemicals Co. (division of Union Carbide and Carbon Corp.) thinks it has the answer. Not a barnyard psychologist, it's a combination of Crag fly repellent and methoxychlor—a two-fisted attack on the horn flies, horseflies and stable flies that cause many bovine irritations.

Carbide's main interest in this is the fly repellent, a butoxypolypropylene glycol that it has offered for several years. By providing the new recipe to formulators (not a product to farmers), complete with suggested USDA-approved label, Carbide figures to hike sales of the repellent to at least a million-pounds/year pace in '55.

Two Selling Angles: As Carbide sees it, the formulation (Emulsifiable Concentrate F-21) will not only be a help to production-conscious farmers, but will provide a readily salable product for the formulator. For a raw material cost of about $1.98/gal. (figuring the Crag repellent* at $2.40/gal., and the methoxychlor at about 98¢/lb.), the formulator has a product that compares in performance to synergized pyrethrin sprays (which also include the repellent) made for over $8/gal.

F-21 formulation, although the newest product suggested for Crag fly repellent use, won't supersede all the other repellent formulations. The compound has long been sold as a product that combines repellency with synergistic properties (for pyrethrins and residual toxicants), high solvent ability, and pyrethrin stabilizing characteristics.

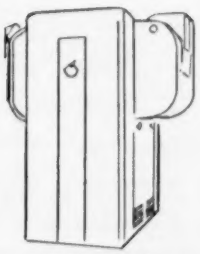
These properties will no doubt help sell the fly chaser to formulators—but how will they push their products to the farmer? One tack: test evidence shows that, although the nuisance aspects of flies are hard to assess, milk production of treated cows is about 3 lbs./day greater than that of untreated animals. Range cattle dosed with DDT for horn fly control gained a half-pound/day more than unprotected cattle.

Killing Squat: Not many types of fly repellents for cattle are currently offered. Besides Carbide's Crag, dimethylphthalate has been used to a certain extent. The well-known mosquito chasers for human use—6-12, M-1960, and the like—differ in action from repellents for cattle. On human beings, the aim is to have a compound that will keep insects from

* The F-21 recipe calls for 49.84% (by weight) repellent, 5.0% methoxychlor, 4.11% emulsifier (such as Triton X-188), 41.05% solvent (such as Sovacide 544-C). The concentrate is mixed with about nine parts water for water sprays, five parts water for residual spray, is used alone in treadle sprayers and backrubbers.

From air conditioning to welding fluxes . . .

LITHIUM CHEMICALS SERVE INDUSTRY!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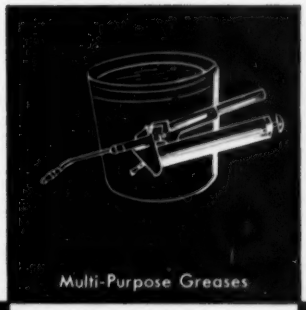
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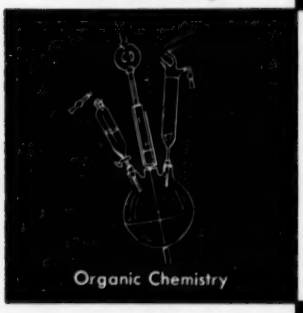
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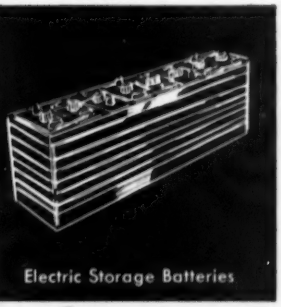
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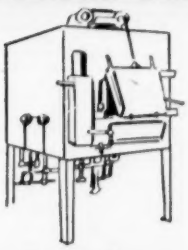
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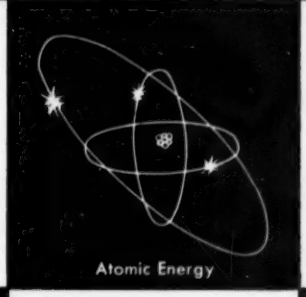
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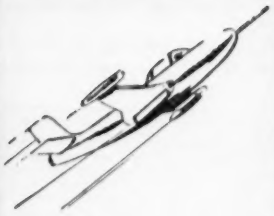
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Long established and progressive manufacturer desires chemist with experience in compounding natural and synthetic latices. Position offers excellent opportunity in laboratory carrying out new product development and application work. Please give details of experience, education and salary desired. Employees advised of this ad.

P-6354, Chemical Week
330 W. 42 St., New York 36, N.Y.

Salesman

HEAVY CHEMICALS

An excellent sales position is open in the Chicago area with a 70 year old National Manufacturer. If you are experienced in industrial selling, are possessed of confidence and drive, willing to travel part-time and are between 25 and 35 years old write us. A resumé can follow later if you wish.

P-6315, Chemical Week
520 N. Michigan Ave., Chicago, Ill.

Position Available

VINYL POLYMER CHEMIST

Century-old national manufacturer is extending its line of products to include polyvinyl acetate emulsions and other elastomeric polymers. Chemists or chemical engineers with specific experience in polyvinyl acetate polymerization and polymer development are required to carry on the development, manufacture and application of these products. Excellent opportunity to grow with an expanding organization.

Send complete information on education, experience and salary desired. All replies confidential. Our employees have been informed of this advertisement.

P-6355, Chemical Week
330 W. 42 St., New York 36, N.Y.

Wanted

ADHESIVE CHEMISTS

Established and progressive manufacturer desires experienced chemists to perform research and product development work in utilization of starch, dextrines and resins in varieties of adhesive formulations. Excellent opportunity with outstanding national organization. Location New York area.

Send complete information on education, experience and salary desired. All replies confidential. Our employees have been informed of this ad.

P-6328 Chemical Week
330 W. 42 St. New York 36, N.Y.

Positions Wanted

Thoroughly responsible chemist-administrator, superior intelligence, proven technical competence and versatility, will learn your business and give 25 years of loyal service. Ph.D. age 39, 7 years industrial experience. Present gov't. salary $10,000. Will take significant salary cut to return to western U.S. location. PW-5411, Chemical Week.

Available

CHEMICAL SALES MANAGER

with know-how and wide industry acquaintance gained from 20 years' sales, technical development and management experience in organic chemicals, seeks connection with new or expanding organization. B.S. in Chemistry. Willing to invest capital.

PW-6342-Chemical Week
330 W. 42 St., New York 36, N.Y.

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INDUSTRIAL CHEMICAL SALESMAN AVAILABLE

Proven sales record last 5 years—top salesman mid-west territory desires sales or management position with growing concern. Age 42.

PW-6356 Chemical Week
520 No. Michigan Ave., Chicago, Ill.

EMPLOYMENT

Selling Opportunities Wanted

Experienced chemical salesman, excellent following Western N.Y. State, B.S. Chemistry, under 35, will represent progressive chemical or related manufacturer. Reasonable salary to start and expenses. Currently employed. VA-6230, Chemical Week.

Manufacturer's Representative contacting chemical specialty mfgrs. in Michigan and Ohio will accept one or two additional accounts. RA-6254, Chemical Week.

Representation — located Phila. area. Excellent contacts East thru Mid-West. Calling on soap-cosmetic, rubber-chemical specialties—pharmaceutical and miscellaneous accounts. RA-6338, Chemical Week.

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Desires to act as manufacturer's representative to sell industrial and fine chemicals. Located in New York. 25 years sales and market development experience.

RA-6249 Chemical Week
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EQUIPMENT--used-surplus

For Sale

Acetone Cracking Heater for Acetic Anhydride plant, made by Lummus Co. 1946. Has 3000 lin. ft. heating tubes. Perry Equip., 1415 N. 6th St., Phila. 22, Pa.

Kettle, Resin, stainless steel, 15 gal. Blaw Knox Electro Vapor heated resin pilot plant, jacketed and agitated, condenser, receiver, piping, controls, etc. Perry Equip., 1415 N. 6th St., Phila. 22, Pa.

Tanks, Stainless Steel, T316, 1000 gal. and 4200 gal. 5/16" thick, dished heads, heat treated and water quenched. Perry Equip., 1415 N. 6th St., Phila. 22, Pa.

3—Blaw Knox 9 x 17 ft. rotary digesters hydrostatically tested for 244 lbs. pressure and 122 lbs. steam pressure. Digesters available with drives and motors. Used six months. FS-6335, Chemical Week.

MC 310 acid and chemical 2900 gal. tankers. MC 303 Petro 6700 and 7400 gal. tankers. 25 ton LO-Boys and a bargain on excess stock of 7.5-20 used rims. Eldon Miller, Inc., Iowa City, Iowa. See Rebo, Stephens or Hall.

Solvent Recovery Plant

For Sale

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Sales agent wishes to represent chemical raw materials manufacturer in east or east and mid-west. BO-6272, Chemical Week.

LABORATORY

BUSINESS OPPORTUNITIES

Opportunity for chemist to purchase fully equipped laboratory for manufacturing cosmetics located midtown Manhattan. Sacrifice, best offer over $5000.

BO-6340 Chemical Week
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PLANTS--PROPERTIES

For Sale or Merger: Completely equipped agricultural chemical plant now producing 2,4-D and 2,4,5-T basically. Also completely equipped for liquid and dust formulation. Our brand name is known all over the world. Present management will remain. Price less than $100,000.00 Courtesy to brokers. Write PP-6390, Chemical Week.

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landing on the skin. Crag fly repellent appears to give cattle a "landing surface" that isn't comfortable for flies—they alight, but don't stay. In combination with a residual pesticide like methoxychlor, the brief alighting time is often enough to pick up a lethal dose of chemical.

As Carbide sees it, its repellent formulations will be but one tool that the alert stock raiser can use to aid his cattle. With the beast protected from bites by a fly chaser, the farmer can use insecticide baits to kill flies in barns—drive the flies off the cattle and lure them to their death.

•

Plastic Conductors: Dean Lyon, (Washington, D. C.) has a way to give plastics an electrical conducting surface (U.S. Pat. 2,704,265). He coats an acrylic sheet with a synthetic resin, to bond on a layer of cuprous iodide. Resultant product is smooth and transparent.

•

Fluoridate It Yourself: If you can't buck the opposition in getting fluorides added at the other end of your water line, you can add it at your end. Fluori Dental (Los Angeles) has a unit that can be slipped into your water faucet to add extremely low concentrations of fluoride ion to the water.

•

If Gas Additives Fail: To remove deposits from the combustion chambers of internal combustion engines, General Motors has devised a simple treatment (U.S. Pat. 2,704,733). Parts are heated about 150 F, and then treated with a solution of ⅓ xylene, ⅓ high-boiling aromatic naphtha and ⅓ dimethyl formamide.

•

It's a Corker: For crown-sealed bottle caps, Dewey and Almy Chemical Co. (Cambridge, Mass.) has gone into commercial production of a new flowed-in lining compound. The resin, designed to replace cork liners, is baked into the cap, can be used at a 1,200-cap/minute rate on all types of carbonated, noncarbonated, and pasteurized beverages.

•

Defamed Depilatory: Pellex, Inc. and Pellex Corp. (New York) lashed out legally last fortnight at Elizabeth Arden Sales Corp. for alleged unfair sales tactics. Pellex (the two firms are manufacturer and distributor, respectively) charges Arden with using a squad of store demonstrators to promote Arden's Sleek depilatory by destroying the reputation of the Pellex hair remover.

According to Pellex, in a suit filed in U.S. District Court for the Southern District of New York, Arden began this plan about four months after Pellex was introduced (Jan. '54). It has proved damaging (Pellex is asking more than $1 million damages) because the demonstrators trained by Arden represented themselves as impartial department store employees—so alleges Pellex—and persuaded potential customers to buy toiletries made by competitors of the defendant.

Arden's reply to the suit—it will make no comment now—will be filed with the court this week.

•

Westward Movement: Procter & Gamble has settled on Iowa City, Iowa, for its newest plant, a "multi-

Pills for Pop

BY ADDING the small white pill to the glass of water, this youngster will have 8 oz. of "pop." The tablets are called "Lucky Pop," are made by Lucky Pop, Inc. (Los Angeles), and were introduced last fortnight by Real Gold (Redlands, Calif.). Abbott Labs' Sucaryl is used for the sweetener in the pills—they provide the adult minimum of vitamin C, but less than one calorie. National distribution of the tablets, selling three-for-a-dime, is expected by the end of June.

million"-dollar one-story structure designed to produce the firm's full line of drug and toiletry products (dentifrices, home permanents, shampoos, etc.).

The first plant outside Cincinnati to produce these P&G products, it will employ approximately 200 persons. Ground for the structure will be broken this summer; full operation is expected by fall of 1956.

•

Metazene Switch: Patent for Metazene, the methacrylic acid ester compound used in space deodorants, has been acquired by Motomco, Inc. (New York). The deodorizer was developed by Lowell Kilgore, has been produced and sold by the Kilgore Chemicals Division, Atlantic Research Corp. (Alexandria, Va.). Motomco will continue to sell the 40% and 80% concentrates of Metazene to deodorant formulators.

•

On Retailers Shelves: Some of the newer specialties offered for household use:

• California Spray-Chemical Corp. is now selling a bait-insecticide called Ortho Fly Killer Dry Bait. Packed in a shaker can (1 lb., $1.25), the compound has a special attractant (said to be better than sugar) in combination with 2% Malathion.

• Mix-your-own shoe polishes are being offered by Nu-Shu (Dallas, Tex.). Part of a kit for refinishing shoes and leather handbags, the polishes are offered in 12 shades—pastel colors can be made by adding white to a darker shade.

• d-Con Co. (Chicago) is now pushing a carpet and upholstery cleaner tagged M-O-Lene. A gallon of the detergent concentrate is said to make 8 gal. of cleaning solution, sells for $2.98.

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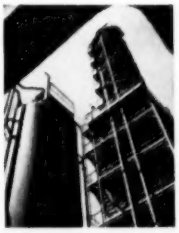

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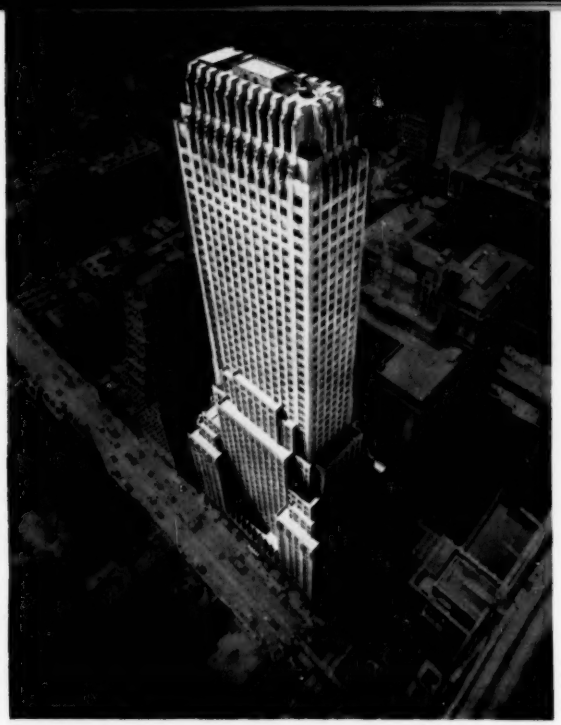

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